AMERICAN GAS ASSOCIATION MONTHLY

MAY · 1935

Gas Cooking Proves Clean and Safe
R. M. CONNER

•

Common Sense Customer Relations
H. D. POLHEMUS

•

Higher Utilization Efficiencies
A. FORWARD

•

Centralized Control of Deposits
T. S. LEVER

"The finest exposition on the comparison of gas and electric performance that I have ever seen."

—F. C. Freeman, President,
Providence Gas Company

It's a Knockout!

You'll admit as much yourself after you look through Laboratory Bulletin No. 6, "Investigation of Domestic Cooking by Gas and by Electricity." Just off the press, this publication sets forth the facts—all the facts—about gas and electric cooking costs, operation and performance.

If you need—and who in our business does not?—indisputable evidence of the superiority of the modern gas range, here is YOUR answer. Among the subjects covered are, Initial and Installation Costs—Operating Costs—Speed in Operation—Quality of Cooked Products—Convenience—Air Vitiation and Cleanliness—Standards of Performance—Performance Characteristics.

Sixty-four pages are given over to twenty-three tables of laboratory and field test data, facts, figures, graphs and illustrations, based on the most complete and authoritative investigation ever made. In addition there are rate data and cost comparisons readily applicable to every locality in the United States and Canada.

Single copies.....$2.00

IN QUANTITY LOTS

First copy.....$2.00
2—25 .....$.50 each
26—100 .....$.37½ each

Special prices quoted for more than 100 copies ordered at one time.

In ordering your supply kindly bear in mind that this is an invaluable reference work for executives, salesmen, commercial departments and dealers.

AMERICAN GAS ASSOCIATION

420 Lexington Avenue
New York, N. Y.

A. G. A. TESTING LABORATORY
1032 E. 62nd Street
Cleveland, Ohio

A. G. A. TESTING LABORATORY
Pacific Coast Branch
718 Towne Avenue, Los Angeles, Calif.

AMERICAN GAS ASSOCIATION MONTHLY

Contents for May 1935

VOLUME XVII NUMBER 5

Where Are We Headed? 167
A. M. BEEBEE

The Cleanliness and Safety of Gas Cooking 171
R. M. CONNER

Natural Gas Convention 176

Common Sense Customer Relations 177
H. D. POLHEMUS

Higher Utilization Efficiencies 179
ALEXANDER FORWARD

Endless Chain Production for Window Displays 182

Franklin Institute Honors Frederick West .. 184

Affiliated Association Activities 186

Centralized Control of Customer Deposits .. 189
T. S. LEVER

Discussion Is Animated at Chicago Symposium 192

Dealer Cooperation 193
I. S. ANOFF

Industrial Gas Advertisements for June 195

Production and Chemical Conference To Be Held in New York 196

Safety Pilots and Relief Valves Made Mandatory on All Approved Water Heaters 198
F. R. WRIGHT

Personnel Service 200

Published monthly by the American Gas Association. Publication Office, American Building, Brattleboro, Vt. Editorial Offices, 420 Lexington Avenue, New York, N. Y. Address all communications to 420 Lexington Avenue, New York, N. Y. The Association does not hold itself responsible for statements and opinions contained in papers and discussions appearing herein. Entered as Second Class Matter at the Post Office at Brattleboro, Vermont, February 10th, 1922, under the Act of March 3, 1879.

SUBSCRIPTION RATE : $3.00 A YEAR

The strongest bond of human sympathy, outside of the family relation, should be one uniting all working people, of all nations, and tongues, and kindreds. Nor should this lead us to a war upon property, or the owners of property. Property is the fruit of labor; property is desirable; is a positive good in the world. That some should be rich shows that others may become rich and, hence, is just encouragement to industry and enterprise. Let not him who is houseless pull down the house of another, but let him labor diligently and build one for himself, thus, by example, assuring that his own shall be safe from violence when built.

A. Lincoln

AMERICAN GAS
ASSOCIATION
MONTHLY

James M. Beall, Editor

Where Are We Headed?*

By A. M. BEEBEE

**General Superintendent, Gas Department
Rochester Gas & Electric Corp.,
Rochester, N. Y.**

THESE are days when great publicity and consideration are being given to the electrical problems of the country, and we hear much of the great social benefits which are supposed to result from the Government's experiments in that industry. As a result, one is likely to form the opinion that the gas industry plays only a minor role in our present system of society and in its efforts to return to a normal economic condition.

Yet, when carefully analyzed, the situation may be similar to that of the old lady of whom we have all heard, who could not find her glasses when all the time they were on her forehead.

Turn on the Spotlight

The gas industry in this country is built upon fundamental economics of a nature seldom realized by the layman, and even by many in our own industry. Let us meditate for a while and turn on the spotlight. Where do we stand? What position can and should we play in the much heralded development of "A More Abundant Life?"

I question if everyone would not agree that two of the essential points in the development of that more abundant life are:

1. The building up of the purchasing power of our country.
2. The development of energy in its cheapest form to become the slave of our people.

One without the other is of doubtful value. The former makes the latter possible and enables us to absorb and enjoy the fruits of the use of energy.

Keystone of Progress

This cycle can be the means of developing the necessary leisure and luxury to realize the right which our Constitution is supposed to give us, *i.e.*, "the pursuit of happiness."

The development of energy has been, from time immemorial, the keystone of the progress of civilization. It bids fair to continue in that position in the future. Energy is the means whereby our wants can be satisfied without drudgery.

Energy can be transported and converted into its various forms such as heat, light and power, and gas and electricity are merely convenient forms of transmitting energy. Why should we have two forms of transporting energy? Why not concentrate on just one? This latter idea seems to be the objective of our present administration. The answer is that there is a very good reason why two forms of energy distribution have developed as they have.

It is interesting to study any highly developed industry. As a rule we find some definite economic reason for its development. Our industry is no exception to this rule.

Energy from various fuels can be converted into useful heat with a high efficiency of conversion, in general from 60% to 85%. However, when such a source of energy is converted into power or mechanical energy, large losses are involved, whether it be by gas engines, turbine, steam engine or electric generator, so that the resultant efficiency of conversion to power will run from 15% to 35%. Please bear this point in mind as this is a very vital and important fundamental which has been responsible for the two forms of energy distribution, as explained below.

Gas for Heat

As mentioned earlier, gas and electricity are merely convenient forms of transmitting energy. Gas is energy in a form that is readily and efficiently converted into heat. However, to convert it into mechanical energy or power, involves the large losses already referred to. Electricity on the other hand is potential mechanical energy and can therefore be converted into useful work with a high degree of efficiency, even as high as 90%. However, in the conversion of the energy of any fuel into electricity the large losses have already been incurred, which gas or any other fuel must involve to be used for mechanical energy or power. Therefore, in the mechanical energy fields, power fields, or light, we find gas has generally no great fundamental conversion advantage and electricity has the advantage of economic application.

But where heat is desired, to use a form of energy such as electricity,

* Abstract of paper presented before meeting of Empire State Gas & Electric Association, April 12, 1935.

which in its production involved these heavy losses, to compete with a form of energy which escaped these losses such as gas, is like trying to make water run up hill. Please bear this last statement in mind, as we later develop our story.

It is true that in the eventual utilization of heat, electricity has generally a higher efficiency of application than gas, for the reason that gas involves the heat losses in its products of combustion. However, these losses are generally of an order of 10% to 15% which is but a small part compared to the 65% to 85% loss incurred in the generation of mechanical or power form of energy.

Electricity to Its Field

Therefore, where light and power are involved, the electrical industry has a just and due field but where heat is desired the fundamental slogan of our industry holds true. "Where heat is desired it can be better done with gas."

Of course, in all these comparisons, we are speaking generally. Specific exception may always be found to any general rule. To visualize the above fundamentals the following table may be of help:

100% represents the energy in the original fuel

For Heat	*Gas*	*Electric*	*For Mechanical Energy or Power*	*Gas*	*Electricity*
Energy in fuel	100%	100%	Energy in fuel	100%	100%
Conversion loss into energy for transportation	20%	75%	Conversion loss into energy for transportation	20%	75%
Energy left for distribution	80%	25%	Energy left for distribution	80%	25%
Transmission and conversion loss into useful heat	24%	5%	Transmission and conversion loss into power	60%	5%
Available for use	56%	20%	Available for use	20%	20%

It is for these reasons, therefore, that both gas and electricity have developed to supply the various energy requirements of a community, since each has a definite field in which it has great advantages. This is also why, for the good of society as a whole, these two forms of energy transmission should continue to function in the future. It is when we try to force the use of one form of energy into a market for which it is not the most economic that troubles arise, which sooner or later will adversely affect and delay our return to a sound economic condition. As will be later discussed, we see all too many examples of this tendency in our present political objectives. This situation just outlined in the table also is the reason which eventually will make the so-called "combination company" a sound instrument in our economic picture, since under such operation there is involved less duplication of expenses, and also there is a reduced tendency to force either type of energy into markets for which it is not intended and for which it is not economic.

While we are discussing this subject, let us digress for a moment and see how these fundamentals have worked out practically.

It will surprise you that the average uses of energy in a community or in a home in the form of heat are from 3 to 10 times that necessary for light and power.

Let us consider a typical home with an average consumption of 50 kw.hr. a month. This home is using 50 x 3,412 B.t.u. or 170,000 units of energy. This same average home uses 3,000 cu.ft. of gas which at 540 B.t.u. means 1,630,000 energy units in the form of gas, or nearly 10 times as much as is used in the form of electricity.

When the present typical energy used in a community in the form of gas and electricity includes domestic, industrial and commercial customers the ratio is in the neighborhood of 3 to 1. These are figures seldom realized. When we consider the total available logical market, the factor becomes even larger. These features cannot help but impress one with the future of our industry.

Another example that these fundamental principles are not mere theory but actually work out in practice is the rate of development of these two forms of energy.

Case History

Let us examine the record of the past 15 years of a company such as the one I happen to represent, which is more or less typical, during which time electric utilization has had a tremendous public acceptance and its most rapid development. It must be remembered that the gas industry was already established when the electric industry started.

Increase in number of electric customers in 15 year period	415%
Increase in number of gas customers in 15 year period	138%
Increase in energy sales in electricity in 15 year period	204%
Increase in energy sales in gas in 15 year period	177%

In other words, the energy growth in the case of gas was nearly as rapid as the electric and yet to accomplish this the electric had to expand its number of customers over four times as compared with only a slight increase in gas customers. These are interesting figures to ponder over.

Let us see if there are any other fundamentals which may be working in our favor, and again we find fortunate conditions. Electricity cannot be stored, while gas can be stored. This means that generating capacity in the case of electricity must be as large as the indicated momentary peak, while gas holders enable generating capacity under average conditions to be installed one-half the peak load. This means a tremendous saving in capital necessary to supply a given load or an investment per unit of energy in the case of electricity which is over four times that necessary for gas.

Furthermore, where transmission costs are concerned, recent studies show that gas can transmit a million horsepower-hours of energy a distance of 283 miles for a cost of $65 for direct operation and fixed charges,

which energy hours in the form of electricity will cost $190.

Distribution costs in the case of gas and electricity to cover customer costs and fixed distribution charges run perhaps only slightly higher in the case of electricity as compared with gas. However, in the case of gas we are talking about a complete underground system with all the inherent reliability that goes therewith.

These are all points to bear in mind in the picture which we are trying to develop as to what direction we should be pointing to improve our social economic system. All these points also cannot help but arouse our confidence in the eventual future of our industry, for sooner or later the economic laws will iron out any attempt to run counter to them.

Perhaps we are now ready to draw a few conclusions. I believe we could all be loyal as could be to an administration that is really trying to pull us out of the depression by sound economics. But what do we find?

Unsound Economics

At these times, when unemployment is our biggest problem, we find vast water-power programs being developed which are the poorest employers of labor of which we know (except temporarily in the installation thereof) and which generally cost more than an equivalent amount of power that can be developed by coal. Furthermore, it is being proposed to almost force this energy to be used where heat is desired in cooking, water heating and the like, which might better be done by gas. Could anything be more uneconomic?

This plan is apparently aped after the so-called progress along these lines in countries like Canada and Sweden without careful analysis of the fact that there may be sound economic reasons for it in those countries. Canada and Sweden have relatively no coal. They have no alternative. Such developments in their country are sound. Every bit of energy so developed means that much less coal to be imported from foreign countries, which importation is a drain on their national wealth and they should, therefore, make every effort to develop hydro power.

In their minds it may even possibly justify, as a national policy, their subsidizing of hydro programs and selling the energy below cost to the householder as they do to force and develop a market for electric cooking and water heating.

Foreign Consumption

In this connection it is interesting to note that these highly advertised tremendous kilowatt hour consumptions per customer, which advocates of the Government program point to with pride as to what is possible, exist only in places where cheap fuels are not available. They would lead us to believe it was merely the result of cheap rates. Nothing is further from the truth. Ontario, Manitoba, the Pacific Northwest and Sweden have developed tremendous electrical consumption per customer, purely because of the expensive fuel conditions, or subsidized low rates and the government imposed duties on fuels from foreign countries. Those who may be sympathetic with the administration policies should consider Los Angeles, Jamestown, or any of a hundred other places which have low electric rates, but where reasonably priced gas is available and which have only developed kilowatt-hour consumption per customer below the average, if anything. The forces which bring about these large consumptions are not the ones which might first appear on the surface.

That eventually the economics of the situation will prevail and that these power authority programs have no real benefit to society can be readily shown by the following.

The promise of low electric rates has been offered on the assumption that a tremendous increased consumption will result, which will so reduce distribution costs as to make such rates economic. These theories may be sound in expensive fuel regions. However, the large increased use of electricity is predicated on the use of electricity for cooking and water heating, which, as outlined earlier, is not economic in this country. The reason for this is because, even when neglecting the fact that gas generally involves greater use of labor, the service of cooking and water heating is now supplied to a customer by gas at a considerably lower cost than to do the equivalent work by electricity, even under the Power Authority rates. Proof of this will be found in the following table which compares an average home using cooking and water heating served by an existing combination gas and electric service with similar all electric service under the proposed New York Power Authority rates.

COMPARISON FOR EQUIVALENT SERVICE—GAS VS. ELECTRICITY

New York Power Authority			*Present Gas and Electric Service*	
Lighting	30 kw.hr. per mo.		30 kw.hr. per month	
Cooking	125 kw.hr. per mo.		1640 cu.ft. per month	
Water Heating	335 kw.hr. per mo.		2700 cu.ft. per month	
	490 kw.hr. per mo.		4340 cu.ft. and 30 kw.hrs. per mo.	
50 kw.hrs. at 3.5c	=	$1.75	30 kw.hrs. at 6⅓c	= $1.90
50 kw.hrs. at 1.9c	=	.95	4340 cu.ft. at 1.00	= 4.34
100 kw.hrs. at 1.5c	=	1.50		$6.24
290 kw.hrs. at 1.3c	=	3.77	We pay taxes from above	1.42
490		$7.97	Net customer cost	$4.82

Some taxes are assumed to be paid under the Power Authority schedule but we maintain that such rates would not be possible and still pay the taxes we carry.

To assume that a policy which may work out in Canada is wise in this country is an entirely different matter. To assume that an antitoxin for diphtheria would cure hydrophobia would be no more silly.

In fact, in our country, it would seem to be the worst possible thing we could do, when that same energy can be developed more cheaply from coal and supplied to society through a whole chain of labor employing industries, such as the mines, railroads,

generating plants, gas plants and the steel and allied industries which supply these industries.

True, these administration ventures will give brief and temporary relief through the labor employed in building them. But we must give heed five years, or ten years from now, when these plans become Frankensteins to turn and plague the society that conceived them.

In other words, the administration's program not only will cost the customer more money for a service equivalent to that which he now enjoys, but it renders valueless the consumer's present serviceable equipment now in use, and in effect confiscates the investment in gas production and distribution facilities that have been developed to serve the community, plus adding to our unemployment situation.

It may be argued that these points may apply only where gas service is available. How about the territory that does not have any gas service? When it is realized that in New York State 91½% of the families already have gas service, the insignificance of this point immediately becomes apparent.

TVA Ballyhoo

That the fundamentals outlined earlier in this paper actually work out in practice, it is interesting to note the sluggishness of the electrical development by T V A in far-famed Tupelo, despite all the costly subsidized ballyhoo to help it.

As near as can be determined T V A activity thus far has tended only to waken the gas industry in that town to its real strength. They report, in the past year, 101 gas ranges sold as compared to 56 electric ranges in a community that already had 363 gas ranges; and 62 gas water heaters were sold as compared to 18 electric in a community that already had 241 gas water heaters. When the T V A started they claimed 300 gas ranges would be replaced in the first 90 days and the report is that at the end of that time not one had been replaced.

In summary, therefore, it would seem that our industry has a large part to play in the development of sound social economics. It is our duty to develop a consciousness of this fact, and to bring all pertinent facts to the attention of the public, so that the program of recovery can be pointed in the right direction and avoid costly pitfalls.

It is our job to hasten the day of a more abundant life and to shed the spotlight of constructive criticism upon the phantom objectives we seem to be chasing. We should press on in our program of the all-gas kitchen, joyful in the knowledge that we are fostering that which is best for society as a whole.

To those of us in the gas industry it cannot help but be inspiring to see how our industry fits into the basic economics of our country, particularly in the future. No man can put his heart into an endeavor in which he does not believe. Such inspiration sooner or later must make itself felt in the progress of the industry, as well as that of the country we are attempting to serve.

Dr. Hainsworth Made Servel Vice-President

Dr. Hainsworth

DR. WILLIAM R. HAINSWORTH, of Larchmont, N. Y., nationally known refrigeration science authority, has been made vice-president in charge of engineering of Servel, Inc., manufacturers of Electrolux refrigerators at Evansville, Indiana. Dr. Hainsworth was elected at a meeting of the board of directors held in New York on April 18.

Dr. Hainsworth received in 1933 the Charles A. Munroe Award granted annually for the most outstanding contribution to the American gas industry. This high honor was bestowed on Dr. Hainsworth in recognition of his developments of the air-cooling principle in gas refrigeration.

In January of this year, Dr. Hainsworth was elected a director of the American Society of Refrigerating Engineers.

The newly elected vice-president of Servel, Inc., was graduated from the University of Washington, Seattle, in the class of 1917. He afterwards took graduate courses at the California Institute of Technology and the Massachusetts Institute of Technology, the latter having bestowed upon him the degree of Ph.D. in 1921.

Gas Revenues Gain 3.1 Per Cent in February

MANUFACTURED and natural gas utility revenues amounted to $70,351,800, in February 1935, as compared with $68,265,100, for the corresponding month of 1934, an increase of 3.1 per cent.

The manufactured gas industry reported revenues of $33,481,900 for the month, a decrease of 1.3 per cent from the same month of the preceding year. The natural gas utilities reported revenues of $36,869,900, or 7.4 per cent more than for February 1934.

Total sales of manufactured gas for the month were 33,943,400,000 cubic feet, an increase of 2.3 per cent. Natural gas utility sales for the month amounted to 100,626,200,000 cubic feet, an increase of 9.5 per cent.

Manufactured gas sales for domestic uses, such as cooking, water-heating, refrigeration, etc. continued to lag, running 6.2 per cent below the same month last year. Sales for house-heating purposes however, gained 31.1 per cent, and for industrial and commercial uses gained 8.6 per cent, somewhat offsetting the decline in domestic sales.

No 1935 Exhibition

By vote of the Executive Board at its meeting in Chicago on March 21, it was decided that no exhibition will be held in connection with the 1935 annual convention of the American Gas Association.

Emphasizes Importance of Gas Standards

THE March issue of *Industrial Standardization*, the official publication of the American Standards Association, devotes considerable space, including an attractive cover with a decided gas industry interest, to the twenty-three standards for gas-burning appliances developed under the procedure of the A. S. A. with the A. G. A. as sponsor.

The American Gas Association is now represented on twenty-five technical committees of the A. S. A. and is sponsor or joint sponsor for four of these. These committees are working on a wide variety of projects of interest to those concerned with both gas production and the manufacture of gas equipment.

Dana D. Barnum, president of the Boston Consolidated Gas Company, is a member of the A. S. A. Board representing the American Gas Association.

The Cleanliness and Safety of Gas Cooking

By R. M. CONNER
Director, A. G. A. Testing Laboratory

SO many unsupported statements have been made from time to time by competitors about supposed atmospheric vitiation and the lack of cleanliness attendant to gas cooking that the American Gas Association Laboratory was requested to investigate this subject and, if possible, present the true facts. A summary of the results of such an investigation are included in the Laboratory's latest Bulletin No. 6 entitled "Investigation of Domestic Cooking by Gas and by Electricity."*

Several years ago the writer discussed certain technical aspects of this subject in the October, 1932, issue of this magazine. Prior to completion of our recent field investigation, however, there was not available, to the writer's knowledge, any reliable information on this subject which had been secured from actual tests in a typical home.

Products of Combustion

Before describing the experimental work conducted in the field it is thought advisable to discuss some of the technical aspects of this subject. The products of complete combustion from any gas burning appliance are composed of carbon dioxide (CO_2), water vapor (H_2O), and nitrogen (N_2). The exact percentage of these resultant gases varies somewhat, depending on the chemical composition of the original fuel gas.

It is true, however, that during the consumption of quantities of city gas liberating approximately the same amount of heat, the total volume of combustion products and their chemical composition will be about the same. Since most gas appliances are rated on a B.t.u. input basis, it is reasonable, therefore, to assume that the volume and composition of the combustion products emitted from any gas appliance will be substantially the same irrespective of the kind of city gas utilized.

* A description of the contents of this important bulletin will be found on the inside front cover of this issue.

Nitrogen (N_2) is a colorless, odorless, inert gas and is one of the principal constituents of the atmosphere which surrounds us. In fact, it comprises about 78 per cent of the air which we breathe. For this reason, if for no other, it will be readily apparent that the addition of small amounts of nitrogen to the atmosphere could not, by the wildest stretch of one's imagination, prove harmful from any known standpoint. In fact, chemists inform us that the human body contains about 3 per cent of this gas and that it is also one of the essential elements of all plant life.

Exterior view of test home.

The exhalation of carbon dioxide (CO_2) is one of the principal results of our normal respiration processes. Breath exhaled from the human body contains over four per cent of this gas and, like nitrogen, it is essential to plant life. The normal atmosphere contains from three to four parts per 10,000 of carbon dioxide, and in city streets, classrooms, theaters, and residences, this percentage is often considerably higher. It has been pointed out by numerous authorities that human beings can breathe air containing as much as six per cent of this gas for an hour without any harmful effects and that as much as three per cent can be breathed for an indefinite period. Furthermore, as has been previously indicated, plants thrive on it.

Water vapor (H_2O), the third principal constituent of the normal process of gaseous combustion, is likewise one of the essential portions of the air which we breathe. Without a sufficient supply of it, excessive evaporation of moisture from all organisms would take place and animal and plant life as now constituted would die within a relatively short time. The amount of water vapor present in the atmosphere surrounding us varies considerably when measured in terms of our standards. It is common practice to characterize the amount present in the air by referring to it as the relative humidity. By this term is meant the percentage of water vapor present in the atmosphere compared to the percentage which would be present at complete saturation of the air at the same temperature and pressure conditions. Numerous authorities state that to be perfectly comfortable air should remain about 50 per cent saturated. They also point out in the temperate zone, and particularly during the winter periods, that the relative humidity in most dwellings is usually too low.

No Atmospheric Vitiation

McPherson and Henderson in their book entitled "Elementary Study of Chemistry," in commenting on previously mentioned components of the products of combustion, have this to say concerning them: "The constituents that are known to be essential to life are oxygen, nitrogen, water vapor, and carbon dioxide. The oxygen in the atmosphere directly supports life through the process of respiration. The nitrogen serves to dilute the oxygen and thus to diminish the intensity of its action. It is likewise assimulated by certain plants. Water vapor prevents

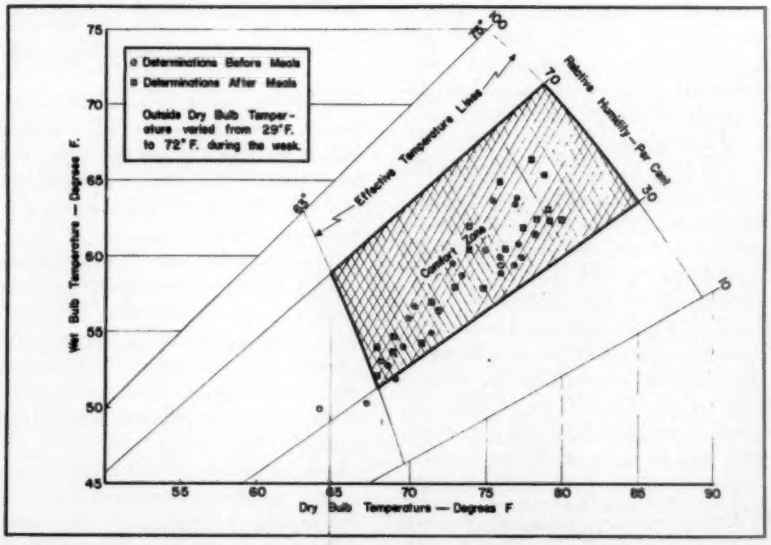
View of kitchen in test home.

excessive evaporation of the moisture present in organisms while carbon dioxide is an essential plant food."

There is nothing said herein concerning the physiological effects of the various gases which go to make up the products of combustion from gas burning appliances that cannot be substantiated by reference to any of the standard textbooks relating to such subjects. By the same token there is no information that can be secured from such sources which will substantiate the charges that gas appliances, under normal conditions of usage, will vitiate the atmosphere of dwellings where such equipment is being properly used. Naturally, because of the very large number of gas ranges installed and the conditions under which any type of cooking appliance must be operated, the gas range probably comes in for the greatest amount of unwarranted criticism. This being the case, it is believed worthwhile to again present a typical analysis of what might logically be termed a hypothetical gas range installation, in order that such criticisms may be successfully met and these theoretical considerations also compared with actual results obtained in the field.

Assume a 10 x 12 x 8 ft. kitchen, which is probably about an average size. Take four air changes per hour, which is customary practice, and grant that the range consumes 36,000 B.t.u. per hour, which approximates the maximum input required to prepare a meal during the field investigation. Since preparation of a large meal normally requires about three hours the total consumption under such conditions would amount to about twenty-one cubic feet per hour of a 570 B.t.u. manufactured gas. The combustion of one cubic foot of such a gas would produce approximately one-half cubic foot of carbon dioxide per hour, 4.0 cubic feet of nitrogen, and 1.25 cubic feet of water vapor.

Since no one would probably claim that the production of such relatively small amounts of nitrogen and water vapor would prove harmful, particularly in view of the large quantities already existing in the air, this example will be concerned solely with a consideration of the probable physiological effects of carbon dioxide. Under such conditions approximately 10.5 cubic feet of carbon dioxide would be produced hourly. The total air content of the room would equal 960 cubic feet and inasmuch as its contents would be changed four times hourly, the maximum possible carbon dioxide concentration would equal $10.5 \times 100 \div 960 \times 4$, or roughly, 0.27 per cent. It is entirely possible, and in fact quite probable, that under ordinary circumstances there would be be a certain amount of circulation of the kitchen atmosphere among other rooms of the dwelling, and that for such reasons the maximum concentration reached would be somewhat less than the figure which has been mathematically arrived at. Aside from this fact, however, it will be observed that



Atmospheric conditions in kitchen before and after preparation of each meal during one week.

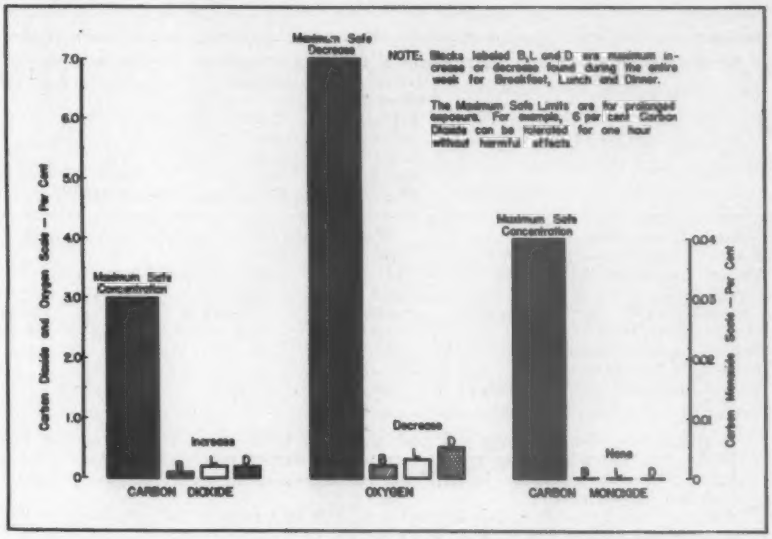
the amount is actually less than is often encountered in classrooms and other buildings housing public gatherings, and moreover, that it is roughly one-tenth of the amount that can be inhaled indefinitely without harmful effects.

In addition to the previously mentioned theoretical example which has indicated no possible deleterious effects from gas range usage, it was decided to thoroughly investigate this phase of gas utilization in the field. The dwelling chosen for the field tests was a two-story, six-room frame building having storm doors and weather-stripped windows. The size of the kitchen was smaller than indicated in the previous example, being only slightly in excess of 700 cubic feet. This residence was heated with a gas conversion burner installed in a solid fuel type of warm air furnace and the hot water was supplied by an automatic storage gas-fired water heater. In addition a gas radiant heater, a gas range, and a gas refrigerator were located on the first floor. In fact, all of the energy required for household purposes, with the exception of lighting, was supplied by city gas.

Flue Disconnected

To simulate what might be classed as the most severe test conditions from the gas industry's viewpoint, the range involved was disconnected from the flue and the opening to the chimney from the hood above the range shown in the accompanying photo-

The gas-fired refrigerator was located near the kitchen entrance.



Comparison between vitiation of air necessary to produce serious effects and maximum vitiation of air determined during field tests.

graph of the kichen was entirely closed. Still further, no readjustments of appliances were made, and inasmuch as all of the equipment had been in use for approximately two years it is believed that conditions prevailing during the tests were somewhat more severe than would ordinarily be experienced in service.

During the field tests it was decided to determine the effects of using gas for cooking, if any, not only on human beings but on plant life. To insure that living and other habits would be entirely regular, one of the week's menus employed during the cooking tests conducted by the A. G. A. Laboratory on gas and electric appliances was adopted, and all of the necessary housework involved in the preparation of the food and other activities attendant thereto were carried out in a normal manner. Chemical analyses were made of the kitchen atmosphere before and following the preparation of each meal and hygrometric readings were secured at regular intervals to indicate changes in relative humidity. Further, a recording thermometer was located in the kitchen to indicate temperature conditions prevailing at all times during the period of the tests.

Blood Test Made

For the purpose of determining the physiological effects on the cook, pulse and respiration rates were recorded before and after each meal. In addition, a blood test for the presence of carbon monoxide was made by employing the pyrotannic acid carbon monoxide detector after the conclusion of the evening meal, when it was assumed that the carbon monoxide saturation in the blood, if any, would represent a maximum. Although several plants, mostly ferns of a sensitive nature, were present and had been for many months, a number of additional and more delicate varieties were obtained and placed in the kitchen where they were observed at regular intervals during the period of test.

Negligible Oxygen Reduction

As previously indicated, while the activities and habits of the cook were entirely normal, she was not permitted to leave the residence during the day. Since the experiments were conducted during the winter months it is only logical to assume that the cook was exposed to a minimum amount of outside air.

A study of Table No. 1, which summarizes the test data obtained during the field tests, shows that at no time during these experiments were atmospheric conditions reached or even approached that might be classified as harmful.

The maximum concentration of carbon dioxide observed was only ten per cent of the amount required to

TABLE 1

EFFECT OF GAS RANGE OPERATION ON KITCHEN ATMOSPHERE AND PHYSIOLOGICAL REACTIONS OF COOK DURING FIELD TESTS
(Note: Only Maximum Adverse Effects Are Tabulated)

	Observations Before Cooking Period During Which Max. Effect Was Noted	*Observations After Cooking Period During Which Max. Effect Was Noted*	*Max. Effect Observed*	*Max. Safe Limit*	*Duration of Cooking Period in Which Max. Effect Was Observed—Minutes*	*Gas Consumption During Cooking Period in Which Max. Effect Was Observed—B.t.u.*
Outside Temperature—°F.	Varied from 29° F. to 72° F. during week's test period					—
Room Temperature—°F.	70	75	5	—	205	36,748
Relative Humidity—%	34	43	9	—	55	6,110
Oxygen—%	20.5	20.0	—0.5	—7.0[1]	205	36,748
Carbon Monoxide—%[2] (Room Air)	0.0000	0.0000	0	0.04[3]	—	—
Carbon Dioxide—%[4]	0.0	0.2	0.2	2.0—3.0[3]	205	36,748
Respiration—Per Minute	22	22	0	—	—	—
Pulse—Per Minute	93	95	2[5]	—	205	36,748
Carbon Monoxide—%[6] (In Blood)	None	None	None	—	—	—

[1] Investigation of Gas Poisoning and Asphyxiations Resulting from the Use of Gas Heating Appliances in Los Angeles and Vicinity, 1926. "An individual when at rest may tolerate oxygen percentages below 13 per cent," or reduction of approximately 7 per cent below normal concentration in air, "without serious effects . . . ." The very slight decrease in oxygen content observed would obviously not be noticeable.
[2] Analyzed with Iodine Pentoxide Apparatus accurate to 2 parts in 100,000.
[3] International Critical Tables, Vol. II. Page 13, 1927.
[4] Symptoms of excessive concentrations of carbon dioxide according to reference (3) are: Anemia, cyanosis, headache, drowsiness, vertigo, tinnitus, and general nervousness. None of these symptoms were observed.
[5] Normal activity in open air caused similar increase in pulse rate of cook.
[6] Analyzed by pyrotannic acid method.

prove objectionable over prolonged exposure, as will be shown by reference to the above chart.

Further, a study of the chart on the preceding page will show that the increases in relative humidity resulting largely from the various cooking operations actually proved helpful rather than detrimental. It should also be observed that all humidity readings obtained during the time the appliances were in operation were within the zone of comfort, and that those falling outside of this area were secured during the early morning hours before the gas range had been placed in operation.

Reductions in oxygen (O_2) content of the kitchen atmosphere were negligible and so far outside of the danger zone as to make consideration of any possible hazard from this standpoint entirely unnecessary. The greatest reduction in oxygen, as will be observed, was 0.5 of one per cent. Reference to the bulletin entitled "Report of the Technical Subcommittee to the Mayor's Committee on the Investigation of Gas Poisoning and Asphyxiations Resulting from the Use of Gas Heating Appliances in Los Angeles and Vicinity" will indicate that reductions of approximately 14 times this magnitude can be tolerated without harmful effects.

Similarly, temperature increases were in no case excessive. The slight increases noted, however, have many very definite advantages which seem to more than compensate for any objectionable ones. In the first place, most consumers, even those of means, often utilize the gas range to heat their kitchens, particularly during the morning hours of winter months. Further, temperature increases noted in the chart assisted in compensating for the normal increases experienced in the moisture content of the kitchen atmosphere to such an extent that all of the humidity readings taken during the period after the gas range was placed in operation were brought within the zone of comfort. When all phases of the subject are considered it is believed that the temperature increases experienced were actually beneficial.

Reactions Favorable

Tests made for the purpose of determining the per cent carbon monoxide saturation in the cook's blood showed no trace at any time. Pulse and respiration readings were at all times within normal limits, providing further proof that conditions prevailing during the period of the tests at no time produced undesirable reactions. Likewise, the analyses of the kitchen atmosphere showed no trace of carbon monoxide during the complete series of tests. Plants at the end of the test period were fully as vigorous in appearance as ever and at least in one instance seemed to be actually improved.

Taking up next the item of cleanliness, it will be understood that when heat is produced, regardless of its origin, convection currents are at once set up which bring about an artificial circulation of surrounding atmosphere. This phenomena, together with the natural tendency of heated moisture-ladened products from cooked foods to rise, results in the circulation of such products throughout the kitchen atmosphere. The less volatile portions of these products are generally deposited on the kitchen walls and ceiling.

One practical and yet very common example of this action is amply illustrated by a study of the dark colored deposits streaking the walls and windows behind steam or hot water radiators or above hot air registers. This condition, in so far as kitchen walls are concerned, is further aggravated by the fact that the moisture-ladened vapors generally arising from cooked foods include greasy constituents. These deposits, mixed with the dust that is always present to a greater or lesser extent in the kitchen atmosphere, result in the discolorations with which we are all familiar. Competitors have

often described this natural phenomena as being peculiar to gas when, as a matter of fact, one has only to use his eyes to observe that it is common to all cooking operations, irrespective of the type of fuel used.

On numerous occasions claims have been made that gas cooking creates excessive moisture deposits on walls and windows. It has already been pointed out that the combustion of city gas results in the formation of water vapor. A large percentage of the moisture experienced during cooking operations, however, comes from the cooking foods, it is maintained, and not from the burned gas. Where open top ranges are employed it is true that some of this moisture would be absorbed by the kitchen atmosphere. In the case of solid top ranges where the appliance was connected to a flue, this would not be the case. In any event, however, a study of Figure 1 shows that such moisture as was produced during cooking operations carried out in the field tests was actually beneficial in that it increased humidity readings to the point where they were brought within the zone of comfort. Where so-called condensation troubles are experienced they can almost invariably be traced to inadequate house heating and where such conditions prevail moisture deposits will collect not only in the kitchen but in other improperly heated rooms.

Discoloration

Another familiar criticism is that gas cooking blackens pots and pans. As has been pointed out, the products of complete combustion of city gas contain nothing that should result in such deposits. Probably one of the best examples that can be cited on this point is the fact that the Association's Laboratory still employs numerous utensils during its various tests that have been in daily use for the past ten years. None of these is discolored to any greater extent than could be expected by such a long period of usage. Oxidation and resultant discoloration of cooking appliances, if effected, result from the intense heat arising from electric and gas range heating elements and not from the gaseous products which, for the most part, are inert.

In numerous localities the oven sections of electric ranges are not connected by vents to a chimney flue. On the majority of gas ranges they are. Further, thousands of the latter types of appliances are of a so-called solid top design where, in such instances, substantially all of the products of combustion are carried from the appliance through a vent to the chimney flue. This, by the way, is an important consideration from the standpoint of cleanliness in favor of the gas range.

It is hoped that nothing said here will be interpreted as discrediting any type of fuel used for cooking purposes. Rather, it is desired merely to bring out the facts. The field tests described indicated that gas, from the standpoint of cleanliness, was the equal of, if not actually superior to, any type of fuel now on the market. At the present time authorities estimate that about 16,000,000 gas ranges are in use in the United States. On the basis of an average of 4.2 persons per family, it is apparent that upwards of 70,000,000 people daily are dependent for their cooking operations on city gas. Furthermore, this general condition has prevailed to a lesser extent, of course, for more than a hundred years.

Refuting Unfair Claims

If there had ever been anything fundamentally wrong with the use of gas for cooking purposes, certainly it would not have taken over a hundred years for our customers to find it out. While scientific studies carefully planned and accurately carried out provide valuable additions to our technical files and may be used to advantage in refuting the unfair claims of competitors, they merely substantiate the experiences of our industry for more than a century. Far more important than these findings is the successful record that has been made by gas day after day under the many thousands of different conditions under which it is utilized by millions of our people. After all, this is the information that counts and the field studies mentioned here merely confirm what gas men have known all along, namely, that gas is one of the cleanest and safest fuels utilized in American homes.

J. B. McCabe Dies

JAMES B. McCABE, president and general manager of the Municipal Gas Company, died March 28 in a Dallas hospital. Mr. McCabe was 59 years old. The Municipal Gas Company, a subsidiary of the Lone Star Gas Corporation, serves a number of Texas towns and cities.

Born August 6, 1875, at Tyronville, Pa., Mr. McCabe started his career in the gas business in 1896 with the United Natural Gas Company, Bradford, Pa. In 1912 he joined the North Texas Gas Company, which in 1922 became the Municipal Gas Company. He became secretary-treasurer in 1913, general manager in 1926 and was elected president in 1928. The Municipal Gas Company was purchased by the Lone Star Gas Corporation in 1927.

Mr. McCabe's wide experience included almost every phase of the gas industry and his work was held in high esteem.

The Government's Mail Bill

THERE is nothing wrong with letter writing or with any other form of propaganda if it be honest and sincere. The Government itself, at taxpayers' expense, has continually defended and applauded its alphabetical agencies through publicity and propaganda. Its mail bill for the past few years plainly indicates this fact, even disregarding the free newspaper publicity which it gets.

	* Penalty Mail	† Franked Mail
1931	$ 9,886,456	$ 852,641
1932	9,151,899	784,725
1933	14,315,414	1,023,615
1934	23,094,882	776,000

† Franked—privilege extended to all members of Congress.

*** Penalty—secures its name from fact that envelope warns of $300 penalty for personal use. This privilege extended all branches of government, including bureaus.**

At three cents a letter, this represents over 750,000,000 letters a year—nearly six letters to every person in the United States. Such a sum would permit the mailing of 16 letters to every individual who voted for President in 1932.

That's a coverage no private source could approach or afford.—National Industrial Council.

J. B. Tonkin

William Moeller, Jr.

W. W. Winter

Alexander Forward

Elmer F. Schmidt

R. W. Gallagher

P. S. Young

N. C. McGowen

NATURAL GAS CONVENTION

Time: **May 6-9**

Place: **Hotel Peabody, Memphis**

Program: **Sixty-eight factual addresses and reports on matters of outstanding importance**

Entertainment: **In keeping with the high standards set at previous Natural Gas Conventions**

H. C. Cooper

H. D. Hancock

C. W. Gale

Dr. John W. Finch

R. W. Hendee

H. P. George

W. C. Grant

Dr. Scott Ewing

T. R. Weymouth

Frank H. Adams

Common Sense Customer Relations

By H. D. POLHEMUS

Vice-Pres., Jersey Central Power and Light Co., Asbury Park, N. J.

H. D. Polhemus

A LETTER from a wrought up customer, the other day, provoked a second thought on customer relations that, I am pretty sure, also has come to you frequently. He said, in effect:

"You treat your complaining customers like dumbbells; your attitude is that you are always right, they are always wrong."

We all agree that there is no one specific formula which, applied in handy single doses, or sugar coated into a regular diet will cure all the ills that creep into our relations with our customers. Even the strict application of the old principle "The customer is always right" cannot be made in itself the answer to customer dealings. We have sought the cure in various ways. Employee education has helped and so have studies in job analysis. We have concocted rules and regulations and crammed them willy-nilly into our employees.

Ramifications of Courtesy

We may preach to our employees the necessity of building good customer relations. We may be able to show them the effectiveness of a smile, a modulated voice, neat appearance, proper English, a pleasant greeting; and all the other ramifications of courtesy and prime requisitions of the contact job. But whether an employee wears a pink tie or a green one, he can probably get farther with an irritated customer by just being natural and sincere than he could by governing his conduct and speech by certain stereotype phrases and mechanical performances.

We probably all, as individuals, have more people like us than dislike us. This would indicate that we are all inherently courteous and affable. As individuals we wouldn't have many friends if we were continually impatient with them or were artificial in our relations with them. You are liked because you are frankly your own self and you treat your friends as you would like to be treated yourself. These same qualities can make customers like gas company employees, and when customers like the gas company employees they generally like the gas company.

I have no objection to rules and regulations. But they are not cure-alls. After all, the Ten Commandments were rather important, as some of you may recall. How many of us can repeat them? How many of us, sensing their import rather than a complete memorization, have turned to the Golden Rule as a summation of them and a handy, easy to remember, substitute.

Common Sense Treatment

My second thought on the customer is that he is entitled to common sense treatment. Current evidence is somewhat against the idea, but I hope some among you will agree with me that there is, here and there, a bit of old-fashioned common sense left waiting for utility men to grab and ladle out in large and persistent doses. I believe the customer will find it palatable and that he will tell his neighbor and his neighbor's wife, and even the fellow around the corner who wants his minimum bill rebated, because his house was closed 18 days, may find it beneficial and soothing.

Just among ourselves, it's a fact we have a lot of dumb customers, dumb, yet aggravatingly loquacious. But not necessarily stupid. They just don't know. A good dose of common sense is all they need—patience and plain conversation far removed from anything that smacks of patronizing.

We don't and shouldn't expect our customers to know all about the utility business. Ordinarily he isn't interested in anything except the service he gets and the money it costs him. It's when something goes wrong with either or both that he starts thinking, and by the time he's reached the counter he's sizzling with ideas that are fuzzy but rampant.

If a customer is sincere, and in a vast majority of cases he is, he wants to be heard. He wants to tell his story to some one who will understand him and do something about it. He doesn't want to be interrupted until he has it all off his chest. His is a *special* problem—different from any one else's, and he wants individual attention. He's lost his common sense. It needs to be restored.

What he requires right then is a sympathetic, understanding listener. He should be in the right place to find it. He should also be in the right place to find natural courtesy and sincere understanding of his *special* problem. If he finds these, he is going to feel much better when his story is told. If he finds these he is going to eventually regain his common sense and accept and believe reasonable explanation. Most important of all, if he finds these he is going to like the gas company. We all would.

Letter Writing Attitude

I grant that fixing up the complaint desk, or the application desk, or even the cashier's window is somebody's job, and it's a mighty important one. But let's go into the sanctums where the higher-ups—you people, sit. What is our letter writing attitude? Are we hurried and curt? Do we seek brevity, and finality behind quotations of rules and regulations? Or do we pick out the sense of the letter and answer in kind, even though it is a hair-curling complaint? Even that kind of complaint must concern something or other the writer is ignorant about.

If we were to write a letter of inquiry to a firm, what would we like in the reply besides prompt attention? First, we would want to be able to understand what it said; second, we

Presented at New Jersey Gas Association Convention, March 28, 1935.

would want the question that was bothering us clearly answered. Rules and regulations wouldn't mean anything to us—ours would be a special problem. If we were to receive plain conversational information marked by a sincere understanding of our complaint and a clear and understandable explanation of our inquiry, we would be highly pleased with the Company. This may not work always in letters, but more frequently than not it will.

Suppose you were treated discourteously in a department store. If, for example, Mr. Jones in this store told you either flatly or led you to believe that he thought you were stupid—that he couldn't take care of your complaint just then because he was busy and even if he did have time just then, rules were rules in this store and there was nothing he could do about it—would you blame Mr. Jones? Yes, you would blame him, but you would put more blame on the store; you would say there is something wrong at the top. The directors of that store hadn't shown common sense because they had made a knocker rather than a booster.

You will find in your dictionary a variety of meanings applied to the word "sense." It has many uses, but I like this, though it is not as concise as some others: "Sense is that which commends itself to the understanding as being in accordance with reason and good judgment." Combined with "common" it means plain, garden variety, to be shared by all reason and good judgment.

How, you ask, may this be taught? What rules may be laid down that our people may capture it?

Well, my notion of common sense is that it is an exercise. It can be patterned and its outline traced and brought into full being by diligent practice.

George W. Crawford, Gas Pioneer, Dies

GEORGE W. CRAWFORD, chairman of the board of the Columbia Gas and Electric Corporation and a pioneer in the natural gas industry, died April 6 in Pittsburgh after an illness of several months.

Mr. Crawford started his career in the oil pipe line business, working with his father and brother-in-law, M. C. Treat. Later he went with the United States Pipe Line Co., and obtained a right of way from the Bradford oil field to the Eastern seaboard.

In 1893, in partnership with his brother-in-law, Mr. Crawford formed one of the earliest natural gas concerns, operating first in the Corning, Ohio, field in 1893.

A little later he helped organize the Ohio Fuel Company, of which he was president. When that concern merged with the Columbia Gas and Electric Corporation, he became chairman of the board.

He was active in development of the Lone Star Gas Co., and Western Public Service Corp., and was a director in the Union Trust Company of Pittsburgh.

His wife, Annie Lawrie Warmach Crawford, formerly of St. Louis, and one daughter survive.

Air Conditioning Schools Meet Popular Response

ANNOUNCEMENT in March of the commercial introduction of a gas-operated summer air conditioner developed under the auspices of the Industrial Gas Research Committee of the American Gas Association and The Bryant Heater Company stimulated a large amount of gas industry and public interest with attendant wide publicity. Shortly following this announcement, the first air conditioning schools in the gas industry were set up in six cities by the Bryant organization and these served to stir up a volume of interest and enthusiasm far exceeding the most optimistic hopes of the promoters.

The first school was held in Cleveland, March 5-7, and the last one was in Boston, April 9-11. In between these dates other sessions were held at Houston, Chicago, Philadelphia, and New York. It was originally planned by the sponsors to hold the attendance down to fifty at each school, but the requests for enrollments greatly exceeded this number and arrangements were promptly made to accommodate the overflow.

At the Chicago school seventy-six enthusiastic representatives of forty-one gas companies reported for instruction and in New York seventy-one showed up, one coming from South Carolina. Total attendance at all schools was 325, representing 110 gas companies. The high type of sales engineer assigned to the schools by gas companies was favorably commented on by all who watched this interesting project. Those enrolled not only took the course seriously but manifested the keenest desire to familiarize themselves with gas refrigeration and its potentialities. There were daily lectures on highly technical subjects, examinations to check up on the information imparted in these lectures, home study work, including the solution of problems, and a final test to determine the individual's fitness for successfully passing the course. Portfolios were presented at a banquet on the last day of the school.

It was realized at the start that any three-day period of instruction could not possibly develop a competent air conditioning engineer, so the course was designed to give only the necessary foundation for those who will sell, design or install air conditioning equipment.

The program for the course was produced by members of the Bryant organization, under the supervision of James C. Patterson, manager of air conditioning sales. Working with him were Major W. E. Stark, R. W. Kubasta and Bayard P. Fonda. Lyle C. Harvey, vice-president was at the New York banquet and delivered an optimistic closing address in which he emphasized the possibilities of gas-fired air conditioning. As an expression of their gratitude, the members of the New York class presented appropriate gifts to the "professors" of the Bryant organization.

Executives of gas companies who dropped in to look over the schools while in session in the various cities commented on the eagerness of the students to get the utmost out of the course provided for them.

Relief Bill To Aid Gas Sales

The passage by Congress of the so-called Work Relief Bill opens a potential market for the sale of gas and gas appliances. It is probable that of the funds provided, sums will be made available for new officers' quarters and mess halls at all army camps and navy yards. Also for the Veterans Administration for additional buildings, and new cooking equipment in hospitals and soldiers' homes.

It is also proposed that present CCC camps be enlarged and possibly new ones established throughout the country. The low cost housing division of the PWA is considering the construction of at least one project in each city with a population of more than 100,000.

It is advisable for gas company and manufacturer company members of the Association to maintain the closest possible contact with the local and state project managers.

Higher Utilization Efficiencies

Alexander Forward

By ALEXANDER FORWARD

Managing Director, American Gas Association

THE peak number of customers served by natural and manufactured gas industries combined was reached in May, 1931, at 16,015,000 customers. Following that a gradual decline set in until the low point of July, 1933, when we served 15,056,000 customers, a reduction of 6% from the top. This decline followed a line which we may expect in our industry and that is a lag of approximately one year behind general business conditions, for we reached our peak more than a year after the depression began and we arrived at the low point one year later than the zero point of the depression in July, 1932.

Customers Regained

Since July, 1933, a gradual improvement has been shown, so that by the end of January, 1935, we had regained 478,000 customers and were serving a total of 15,534,000. Up to August, 1930, the gross monthly revenues of the industry continued to exceed the corresponding months of the preceding year. In that month, for the first time during the depression, our gross revenue showed a decline and continued to fall until in April, 1933, when our revenues were 12% below the same month of the preceding year. Since that time our revenues have gradually improved, and in February, 1934, they reached the point where they showed an increase over the corresponding month of the previous year. This improvement continued and revenues for 1934 amounted to $698,000,000, an increase of approximately 2.6% over 1933; nevertheless, they were still 12% below 1930, our peak year.

Now, with a growing total of customers, why do not our revenues make a more favorable showing? We do not find all the answer in the continued reduction of industrial and commercial activity, for although sales of industrial gas are still off substantially, they have declined since the peak in lesser degree than the corresponding sales of some of our competitors, notably electricity.

We find, further, that seven times as many gas ranges as electric ranges were sold in the United States in 1934. The figure is not very comparable, since most electric ranges are sold where gas is not available, particularly under the Federal government campaign for rural electrification. No one knows the relative sales of gas ranges and electric ranges in gas-served territory. These are possibly twelve to fifteen times as many gas as electric units.

What, then, is the answer? There are several. For example, there have been rate reductions, in part, with effect on gross revenues. Competition is keener, more liberally financed, and aided by governmental efforts in some sections. There is yet another factor, most interesting and I believe significant.

Manufacturers' Contributions

Gas appliance manufacturers, with courage and faith in the industry, have put their entire resources behind improvements in the efficiencies of their products and in raising their standards of quality and appearance. Oftentimes the contributions made by manufacturers to the industry are not fully appreciated. In some instances their resources have been and are now strained in the effort to improve the durability and performance of those appliances through which the major part of the industry's product must be sold in the service of the public.

Their efforts have resulted in substantial reductions in the amount of gas used in these appliances and account in considerable degree for the non-increase in the average domestic consumption. It does not seem strange that we strive for economies in operation of an appliance on our customer's premises when we remember that in other lines of business similar efforts are being carried out, and sometimes to a very large extent.

For example, according to the ten-year records of our Laboratory in Cleveland, the average efficiencies of gas ranges (top burners only) have increased in 1934 over the period 1926-1928 by 21.2%. In effect this means that the average consumption of gas in the top burners of domestic ranges sold during the last year or two has declined about one-fifth. Obviously it is not possible to follow through and apply these percentage increases in efficiencies to ranges in use, in the absence of much more detailed information as to the number of installed ranges which may be regarded as strictly modern. This study of comparative thermal efficiencies is, however, substantially correct and is undoubtedly an important factor in saving gas bills to the domestic customer.

Increased Efficiencies

The average efficiency of gas water heaters has advanced 5.9% in the same period; of gas space heaters, 2.9%; of warm air furnaces, 2.7%, and of boilers, 1.3%.

The increase in efficiency of top burners on gas ranges is perhaps attributable for the most part to changes in burner design, distance from the burner to the utensil, and the inclusion of aeration bowls, which to some extent control the amount of excess air passed through the combustion zone.

Water heater efficiencies, with an increase of 5.9%, are largely due to the more efficient transfer of heat from the appliance to the water by increasing the travel of such products and to better control of secondary air. Some influence has doubtless been exerted by the introduction of slow recovery heaters, which, as a general rule, will give somewhat more economical service in the home.

The rest of the domestic appliances tested in considerable numbers by the

Address delivered April 15, 1935, at Mid-West Gas Association Convention.

Laboratory fail to show a material efficiency increase. In heating appliances this is due largely to the difficulties encountered when flue temperatures are reduced below a reasonable figure, because of the tendency to produce condensation in the flue passages.

The Central Heating Gas Appliance Requirements Committee increased the minimum permissible efficiency of floor furnaces 5%. The Subcommittee on Approval Requirements for Gas Water Heaters has now recommended a change which would increase the minimum efficiency from 65 to 70%. The range requirements committee is also considering a similar change in the efficiency requirements for top burners. For the most part the trend among all the Laboratory approval requirements committees is to increase minimum efficiencies.

Future Development

Gratifying as these facts may be, we have much farther to go. Competitive conditions and the general demand for economies require further adjustments to permit us to retain and advance our domestic load. Our technical skill remains of the best and further economies in production, transportation and distribution are problematical.

What, then, to do? If possible, higher efficiencies in gas burning appliances should be our aim. The manufacturers who have done so much, can do very little more. As has been said so many times, we do not in the gas industry possess the organizations with great resources which have permitted the leading manufacturers in the electrical industry to conduct large programs of research and development in their field. Our manufacturers have in many instances reached or exceeded the limits of their resources.

Our plans are for the present in embryo and it is not possible to discuss them here. It is sufficient to say that the American Gas Association has recognized an industry responsibility for further improvement in the efficiencies and economies of gas burning domestic appliances.

The development of these facts as to what has already been accomplished in the domestic field prompted inquiry on my part as to similar developments in the field of industrial heating.

It may be said with truth that within the last five or six years the reduction in gas consumption through improved methods of utilization has affected nearly every industrial heating operation. Of course we know that the same thing is true in the utilization of other fuels, including coal, oil, and electricity. The gas industry is not a bit behind its competitors in this matter.

Industrial Heating

For example, when the old style brick traveling bake ovens were introduced some years ago, a thousand cubic feet of gas per thousand pounds of bread was considered good practice. Now, in large bake ovens of the continuous type in some places, a thousand pounds of bread are being baked with less than 700 cubic feet of manufactured gas or a reduction of 30% in gas consumption. These figures cover continuous production and do not include the gas used for initially heating the oven.

The introduction of refractory insulating brick for industrial furnaces, a few years ago, has made it possible to rebuild the interior of furnaces with this brick in place of ordinary firebrick and saves upwards of 25% in the amount of gas used. A number of gas companies are systematically attempting to get all of their industrial furnace customers to rebuild their furnaces with insulating firebrick, so that advantage can be taken of this very decided saving and in this manner increase customer satisfaction and eliminate competition.

In industrial heating operations there are, of course, other factors besides reduced gas consumption which our customers take into effect when studying their operations. Lowest net over-all cost per unit of product is the figure for which they strive. This can sometimes be attained directly by merely reducing gas consumption as in the case of furnaces rebuilt with insulating firebrick. On the other hand, an entire change of process might so alter labor cost, time of production, or increase quantity of product, or reduce the necessity for close supervision, that the net reduction of cost is attained without necessarily reducing the gas consumption per unit of product manufactured.

On the other hand, unit gas consumption can sometimes be reduced by substituting a counter-flow furnace for a straight line production furnace. In these furnaces the hot pieces leaving the furnace give up their heat to the cold pieces just entering the furnace, thereby reducing unit gas consumption. Also, the use of preheated air offers a means for reducing unit gas consumption.

One of the outstanding methods of reducing unit gas consumption that has been developed during the last few years is the substitution of internally heated immersion units for external heating of tanks, kettles and pots. This method applies to both soft metals and liquids. In the stereotyping field, for instance, manufacturers of equipment and some gas companies are given guarantees of from 33⅓% to 40% saving over externally fired systems. This has almost completely reversed the previous trend from gas to electric heating for stereotype melting. One advantage of immersion heating is that there is practically no limitation as to size. It is now being extended to linotype and monotype heating on the one hand, and to large beer vats on the other.

Automatic Furnace Controls

Another means of reducing gas consumption is the general application of automatic controls to furnaces. With hand control, temperatures sometimes go haywire with unnecessary waste of gas.

Each industrial heating operation is a separate engineering problem and is so tied up with the processes of manufacture employed in the particular factories under consideration and with the speed of manufacture and the quality demanded in the particular factories, that no set rules can be laid down for universal application. The one thing we are sure of, however, is that taken by and large less heat energy is being used in the production of goods now than formerly.

It cannot be claimed, and I am not now claiming, that such large percentages of gas savings apply to the entire field. A conservative estimate is that the over-all reduction in operating costs of gas burning industrial appliances, due to recent developments, is approximately 5%.

It is unnecessary for me to dwell upon the efforts put forth by the American Gas Association, approved and sponsored by its Executive Board, and carried on through its sections and committees, looking to sales stimulation in the domestic, commercial and industrial fields. You are familiar with our national gas range and refrigerator sales contest, with our water heater portfolios, with the organized and intelligently planned activities of the Industrial Gas Section. Never in my experience has the industry been more on the alert with constructive plans for sales stimulation.

We can also take pride, with due modesty we hope, in our cooperative scientific tests with Massachusetts Institute of Technology into the costs of water heating by various fuels, of which such marked use is being made by the Industry. In the same category is our Laboratory Bulletin No. 6, "Investigation of Domestic Cooking by Gas and by Electricity." This bulletin is the result of extensive research at the Cleveland Laboratory, and brings down to 1935 the relative costs and efficiency of cooking by gas and by electricity, using modern appliances in both cases. It is most gratifying to note that notwithstanding the undoubted improvement in electric cooking appliances in recent years, the improvements in domestic gas ranges have been even more marked, so that our competitive position is even better in 1935 than it was in 1932 when the previous Laboratory bulletin on this subject was made available to the industry.

The potential uses for gas exceed those of any other form of energy in the home. With our industry thoroughly organized as we are today, with saner balance in political affairs, with old uses for gas modernized, with new uses being made available and with further improvements in efficiencies and economies to come, I say that the outlook for our industry is substantially better than it was on April 16, 1934.

Inventor of Schafer Method Dies

SIR EDWARD ALBERT SHARPEY-SCHAFER, inventor of the Schafer method of artificial respiration, died March 30 in his Northumberland home in England. He was eighty-five years old.

Sir Edward had an international reputation in the fields of histology and physiology. He was distinguished for his discoveries regarding muscular action, made during long research with water beetles, and for his discovery of the importance of hormones to the health of humans. He was professor of physiology at Edinburgh University from 1899 until 1933, when he was appointed professor emeritus.

It was in 1903 that he devised the plan of resuscitation, also known as the "prone pressure" method, that carried his name around the world. For two centuries civilized peoples had been seeking a method of reviving persons apparently drowned or suffocated, and the Schafer method seemed partially to solve the problem. It has resulted in the saving of untold thousands of lives.

The McCarter Medal, which has been awarded by the American Gas Association to thousands of men in the gas industry for outstanding work in the saving of human lives, is based upon the successful application of the Schafer method of artificial respiration. The medal is made possible by the generosity of Thomas N. McCarter, President of the Public Service Electric and Gas Co., Newark, N. J.

Flood-Proof Gas Plant Ignores High Water

THE two gas plants of the Louisville Gas and Electric Co., Louisville, Kentucky, have taught many principles of safety. One of the plants, at Jackson and Washington Streets, near the Ohio River, has a daily capacity of 4,000,000 cubic feet. The other, situated two miles further up the Ohio River, has a capacity of over 20,000,000 cubic feet.

The plant at Jackson and Washington Streets is the older. On its location there has been a gas plant since 1838. The second plant was erected in 1923 as a standby unit to augment the natural gas supply, particularly during the heavy winter demand. This second plant, Beargrass, took its name from Beargrass Creek.

Principles of safety had an important part in the designing of the Beargrass Plant. Safety problems were increased because the plant is subjected to seasonal flooding from the nearby river. That these problems were foreseen and successfully solved is shown by the fact that Beargrass has operated through numerous flood periods. There were periods when water completely surrounded all the buildings.

Coke must be stored in large quantities at Beargrass, and since this fuel floats, the storage pile was safeguarded against loss by high water. All of the buildings were inter-connected by bridges. With the outside coke storage well guarded against floods, and with an additional quantity of this fuel stored in basements, the plant could operate during high water for more than a month. Since the longest flood period is but two weeks, the fuel factor of safety is amply provided for, and the question of safety is the human equation.

Endless Chain Production for Window Displays

Assembling the various completed units of a window display in the new display studio of the Consolidated Gas Company of New York

STARTING in a corner of one floor several years ago, the Display Division of the Consolidated Gas Company of New York has now moved into new quarters which provide 14,000 square feet of space.

Careful planning of the newly acquired area has resulted in an endless chain type of production. Raw materials are delivered at the receiving room at one end, and the finished window displays and other pieces of advertising material are trucked away at the other end.

Work in the display studio starts from a hand-colored sketch, with scale of one inch to a foot. After each color sketch is approved, it starts on its journey through the studio. Carpenter shop, painting division, finishing room, art department, assembly room and, finally, shipping department, operate along the lines of a modern manufacturing plant.

From the color sketch, the heroic size figures so frequently seen in the windows are painted on wallboard. After these figures are drawn in full size, they go to the carpenter shop to be cut out and supported before painting. This precaution is taken so that the finished work will be absolutely free from blemishes.

The various sections of the display are colored in the finishing room. Here paint is sprayed on all flat surfaces by air brushes. This operation takes place under a large metal hood or enclosure, from the roof of which a draft exhausts fumes and carries off the surplus paint. Various types of air brushes are used. In connection with painting, lacquers have been substituted for water color. It was discovered that water color fades after exposure to the sun, and in addition does not permit the constant cleaning so necessary in window display work.

"Test" Show Windows

After all colors have been applied to the several parts of a display, the various elements are assembled. Cut-out lettering is mounted, art work is attached, and then the entire display, including the appliances, is placed in a "test" show window. There are three of these full-size windows with complete lighting facilities installed in the new studio for the purpose of

Many techniques are used by the staff of the window display bureau in their work.

seeing the displays under actual "street" conditions before sending them out to be viewed by the public.

Artists, supervisors, and the display directors study the sets. Criticism follows, and if necessary, parts are changed and modified. The displays are now ready for the windows. They are removed from the "test" windows and taken into the delivery room, where they are placed in racks, awaiting distribution. Company trucks may back into this room and the sets loaded without exposure to the weather. Facing the "test" windows, on the north roof of the art room, is a large skylight which provides daylight for the "test" displays and which also affords the correct north light for the artists and draughtsmen.

A large number of articles used in arranging a window display are stored away in metal bins. In the shipping room there is also space for storing large and small appliances which are used in the displays.

The Display Studio has the responsibility of preparing suitable window displays for all of the affiliated gas and electric companies in the Consolidated group, including the Brooklyn Edison Company and New York and Queens Electric Company—41 gas windows and 76 electric windows. Record is kept of the size of each window and specific displays are assigned to windows of a specified size. Each display is routed from one location to another. At present they remain in one place for four weeks.

Ideas for all window displays originate within the Display Division. Raymond M. Martin, director of display, and his assistants have an intimate knowledge of the use of the various appliances, and know how to stress the various sales features at "the point of purchase."

Noted Japanese Gas Man Dies

AMERICAN gas men will learn with regret of the death on February 22 last of Sakura Okamoto, vice-president of the Tokyo Gas Company, Ltd., and president of the Toho Gas Company of Japan.

Mr. Okamoto will be remembered by many for his introductions of the representatives of these two companies which have visited so many American gas works during recent years. Among them are Messrs. Irie, Ito, Mishima, Mihori, Nakamura, Omori and Suwa.

Of Mr. Okamoto we can do no better than repeat what Mr. Mizukoshi, General Manager of the Imperial Gas Association of Japan writes: "Mr. Sakura Okamoto was a great man in our gas world, not only for engineering prospect but also for management, and his high human character was respected from every man. Indeed, present position of our gas industry depend entirely upon his superior brain and his big talent. His death is the great loss of our Association, as the same time of our gas industry."

SERVES THE ENTIRE INDUSTRY

By ROBERT W. HENDEE
President, Oklahoma Natural Gas Company

There is hardly a problem with which a gas company is confronted that cannot be answered by using the facilities of the American Gas Association. Its service covers practically every phase of the business and, as we have come to use it more and more, our enthusiasm for the helpful and constructive activities has grown tremendously in the past several trying years.

The rapid growth of the natural gas industry has developed many new and important uses for gas. The introduction of new equipment and the continuous improvement of the older equipment has necessitated much study and checking. Through its well-organized laboratory at Cleveland, Ohio, the Association has met the requirements of the natural gas industry in a most admirable way. Its reports are thorough and complete in every detail, and afford information to individuals in the gas business and to gas companies which could not otherwise be obtained.

The statistical information, provided by the general office, is always of such importance that no one can afford not to read and study it carefully. The changing conditions relative to rates, sales policies, requirements of various commissions and regulatory bodies are always promptly brought to the attention of the industry, thus promoting mutual improvement for its members.

In other words, it provides an information bureau or clearing house for all phases of the gas business and, under the able management of Major Forward and his staff, I consider the A. G. A. to be a most valuable asset to the industry.

Committee on Laboratory Seal Appointed

PRESIDENT Young has appointed the following committee with E. R. Acker, president of the Central Hudson Gas & Electric Corp., Poughkeepsie, New York, as chairman, to make a study of the Laboratory Seal of Approval in relation to its use on domestic gas burning appliances:

R. M. Conner, A. G. A. Testing Laboratory, Cleveland, Ohio; E. M. Farnsworth, Jr., Boston Consolidated Gas Co., Boston, Mass.; John A. Fry, Detroit-Michigan Stove Co., Detroit, Michigan; Holt Gurney, Gurney Foundry Company, Toronto, Canada; Lyle C. Harvey, The Bryant Heater Co., Cleveland, Ohio; Arthur Hewitt, Consumers Gas Co., Toronto, Canada; B. J. Mullaney, The Peoples Gas Light & Coke Co., Chicago, Ill.; Henry Obermeyer, Consolidated Gas Co. of New York, New York, N. Y.; W. T. Rasch, American Gas Products Corp., New York, N. Y.; John B. Tonkin, The Peoples Natural Gas Co., Pittsburgh, Pa., and Charles W. Person, A. G. A. Headquarters, New York, N. Y., Secretary.

Petroleum Institute Meeting

THE Annual Spring Meeting of the Eastern District—Production Division of the American Petroleum Institute will be held at the William Penn Hotel, Pittsburgh, June 5 and 6.

Among the papers on vital subjects to the oil and gas industries to be presented are, "Future of natural oil producing methods in the Eastern United States oil fields"; "Flooding—past and present, together with its future possibilities"; "Latest methods of pumping oil, including equipment"; "Latest methods of fluid removal from gas wells"; "Acid treatment of oil and gas bearing formations"; "Past experiences and future possibilities of locating subsurface structures by seismograph in the eastern oil and gas fields"; "Plugging off permeable sand lenses in repressuring projects."

On Wednesday evening, June 5, the Annual Stag Dinner will be held, with F. F. Schauer, Equitable Gas Company, as Toastmaster.

Franklin Institute Honors Frederick West

THE Committee on Science and the Arts of The Franklin Institute of Pennsylvania has recommended the award of the Walton Clark medal to Frederick Joseph West, of Manchester, England, chairman and managing director of the West Gas Improvement Co., Ltd. and of West Gas Improvement Co., New York. The presentation will be made May 15 in Philadelphia by The Franklin Institute.

The United Gas Improvement Company of Philadelphia, on November 30, 1926, presented to The Franklin Institute a sufficient fund to permit of the award, not more frequently than once a year, of a gold medal to be known as the Walton Clark medal, "to the author of the most notable advance in knowledge, or improvement in apparatus, or in method, concerning the science or the art of Gas Manufacture, or distribution or utilization in the production of illumination or of heat, or of power." The obverse of the medal bears a profile relief of the late Dr. Walton Clark and is inscribed around the margin "The Walton Clark Medal." The reverse bears the legend "Awarded by The Franklin Institute to (name of recipient) for original and notable work in the gas industry."

Citation

The committee which has recommended Mr. West for the award consists of J. B. Klumpp, chairman; O. B. Evans, M. M. Price, J. M. Rusby and J. M. Weiss. Associate members are C. J. Ramsburg, A. B. Macbeth, and F. P. Tarratt of England.

In its recommendation and citation, the committee states, "We have selected Frederick Joseph West on account of his activities during his entire life in the development and promotion of the manufactured gas industry, for the advances he and his organization have made in the design and construction of apparatus used in the carbonization of coal, for his research work in determining the efficiencies and practicabilities in the use of various coals in the gas industry.

"We have also selected Mr. West on account of the far-reaching work he has done to encourage the education and training of engineers and the national work he has done to foster a better understanding between the employer and the employee connected with the gas manufacturing industry in Great Britain."

Mr. West was born in England in 1872. He is a son of John West, former president of the Institution of Gas Engineers of Great Britain, who for forty years was engaged in the development and construction of coal gas distillation plants. Mr. West joined the West Gas Improvement Company in 1894 and has been chairman and managing director of that company since 1922.

Active Designer and Manufacturer

Throughout his life, Mr. West, as an active designer and manufacturer, has taken a considerable and active interest in the scientific training of young men for the gas profession.

He has occupied a leading part in the organization of technical education and was chairman, for 7 years, of the Manchester College of Technology. Many men holding leading positions in the gas industry today entered the profession as pupils to him. He was a member of the governing body of the University of Manchester and chairman of the Governors of Manchester Engineering Scholarships. He was awarded the first honorary Associateship of the Manchester College of Technology and has served on several government committees including the Government Commissions on Technical Training for the Engineering Industry.

Mr. West has held many honorary positions in the engineering profession. He is past president of the Manchester Association of Engineers and of the Manchester Branch of the Institution of Civil Engineers; past president of the Society of British Gas Industries; honorary member of the Institution of Gas Engineers.

Frederick J. West

In connection with his development and construction of gas works and industrial plants, Mr. West has made a close study of industrial relationships between employer and employee. He was for two years president of the Manchester Engineering Employers' Federation and president of the Manchester Engineering Council, a unique organization to create and foster a better understanding and closer personal contact between employers and employed, and later he was made a member of the Industrial Arbitration Court in London.

Attended A. G. A. Conventions

Frederick J. West has contributed and assisted in preparing several technical papers and addresses on modern developments in the manufacture and utilization of coal gas.

He attended and contributed to the technical discussions in the American Gas Association Conventions in 1921 and 1933, and in the International Gas Conventions in London in 1931 and in Chicago in 1933.

"In our investigation of the proper recipient of this medal," the committee reports, "we had several communications from abroad. A letter from the Institution of Gas Engineers of Great Britian, in reply to our inquiry, said

that the Council of that Institution had unanimously passed a resolution stating that Frederick J. West had been of outstanding service to the gas industry in spheres of improved scientific development of gas works practice and technique, practical gas research, increased and better facilities for the training and education of engineers, amicable relationship between employers and employed, and cooperation with the gas industry overseas, coupled with considerable public service, all of which have been and will continue to be of substantial advantage to the gas industry."

The last award of the Walton Clark medal was made in 1932 to Philip T. Dashiell, of Philadelphia, vice-president in charge of production of The Philadelphia Gas Works Company, "in recognition of his outstanding contributions to the carburetted water gas industry as embodied in his fuel oil carburetion process."

The Dennings Sketched by Miss Denning

The above reproductions were made from charcoal studies of Mr. and Mrs. L. B. Denning, drawn by their ten-year-old daughter, Mary Katherine Denning, who has been sketching since she was three years old. Mr. Denning is vice-president of the American Gas Association and president of the Lone Star Gas Corporation

Folder Features Real Lincoln Penny

EFFECTIVE direct-mail advertising is always in demand, and more so perhaps at this moment because of the rising tide of competition in the gas business. The Oklahoma Natural Gas Company, Tulsa, is using a mailing piece that well deserves attention by advertising men in the industry.

It is a four-page folder printed on stiff stock, yellow in color, and three inches wide by five inches long. The cover carries the title "Every Penny Counts" and a real Lincoln penny firmly affixed on page three which appears in relief on the cover by means of a hole punched in the cover.

Page two, at the bottom, contains the name of the company and page three carries this message: "This Penny Will Buy Enough Gas To COOK a good dinner for 6 people! MAKE 88 cups of good coffee! HEAT water for 3 baths or 24 shaves! BAKE 60 biscuits or a 15-lb. ham! OPERATE gas refrigerator for 15 hrs.! HEAT bathroom 3 hrs. or living room 1 hr.!"

On page four appears the statement "Natural Gas Is Cheap"! W. Jennings Young, vice-president, and other members of the organization say that the folder is securing excellent results.

You Can Do It Better with Gas, Senator

A BILL introduced in the United States Senate by Senator King would set up a Division of Smoke Regulation and Boiler Inspection in the Engineer Department of the District of Columbia to control and regulate the discharge or emission of smoke, soot, noxious gases, cinders, or fly ash into open air.

The provisions of the bill are similar to those introduced in other cities prior to the functioning of a department devoted to smoke elimination.

McCarter Medals Awarded

ALBERT FOSTER, a serviceman in the gas department of the Lawrence Gas and Electric Co., Lawrence, Mass., was awarded the McCarter medal and certificate February 21 for the saving of a human life. The presentation was made by R. H. Patterson, vice-president and manager, in the presence of a large group of employees.

On the morning of August 10, 1934, Mr. Foster called at the Methuen Hotel to investigate an odor of gas, and found a man lying unconscious on the hall floor. Using the prone pressure method, Mr. Foster later asked that a doctor be summoned and an inhalator procured from the company. When the latter arrived it was used in conjunction with the prone pressure method until the patient was considered out of danger.

In making the presentation, Mr. Patterson congratulated Mr. Foster on his quick, intelligent action and stated that the award was merely an outward sign of the gratitude that all felt toward one who has served a fellow human being and rescued a human life from destruction.

A day previous to the above award, John M. Orts, director of safety education, Public Service Corporation of New Jersey, presented the McCarter medal and certificate to Frank Jasinski, an employee of the Public Service Electric & Gas Company, at the Harrison Plant.

Mr. Jasinski successfully resuscitated Charles Gromadeck on October 17, 1934. On that date Mr. Jasinski noticed a crowd across the street from where he lived and upon investigating found that Mr. Gromadeck was unconscious from illuminating gas. Immediately applying the prone pressure method on the patient, Mr. Jasinski was later relieved by a local fireman. Mr. Gromadeck was removed to the hospital where he recovered two days later.

Federal Housing

THE Federal Housing Administration has just published a booklet entitled "Selling Better Housing," described as "a sales manual for building contractors and all men engaged in the sale of a material or service necessary in the improvement, modernization and repair of properties."

The booklet is divided into three sections: Organizing for Selling; Selling Better Housing . . . . and How To Close the Sale; and Selling Property Improvements on the Farm; Selling Modernization to Main Street; Salesmen's Charts.

Copies of these may be had on application to the Public Relations Department, Federal Housing Administration, Washington, D. C.

Affiliated Association Activities

New Jersey Gas Association

H. E. Cliff

NEARLY six hundred persons attended the twenty-fourth annual meeting of the New Jersey Gas Association held at Camden, N. J., on March 28, 1935. Representatives of all gas companies in the State, and manufacturing company members agreed that this year's meeting was one of the most interesting and successful the association has ever held.

E. J. Menerey, president of the Peoples Gas Company of Glassboro, N. J., and president of the Association called the meeting to order at 10:00 A.M. Colonel E. C. Rose, vice-president of Public Service Corporation of New Jersey, welcomed the delegates to Camden, pointing out the features Camden has to offer.

Following a brief address by Mr. Menerey, the business session was conducted, during which officers were elected for the coming year. Herbert E. Cliff, of Public Service Electric and Gas Company, and for several years an active member of the Accounting Section of the American Gas Association, was elected president. William S. Potter, treasurer of the Elizabethtown Consolidated Gas Company, of Elizabeth, N. J., was elected first vice-president, and Henry P. J. Steinmetz, general sales manager of Public Service Electric and Gas Company, was elected second vice-president. George B. Webber, also of Public Service, was re-elected secretary and treasurer.

President Young Speaks

Major Alexander Forward, who for many years has appeared on the program of the annual meeting of the association, introduced P. S. Young, president of the American Gas Association. Mr. Young discussed the importance of the gas industry to New Jersey, and pointed out the value of the New Jersey Gas Association as an educational medium. The many available markets for the use of gas, the importance of using every effort to reach these markets, and optimism regarding the future of the industry were keynotes in President Young's address.

Other speakers on the morning program were Evan B. Strauss, personnel manager of Jersey Central Power and Light Company, and Thomas E. Colleton, associate state director of the Federal Housing Administration.

Davis M. DeBard, sales engineer of Stone and Webster Service Corporation, opened the afternoon session with a thoughtful discussion of trial rental sales plans. Lyle Harvey, vice-president of the Bryant Heater Company, presented a strong case for the possibilities of air conditioning. He outlined a few of the more fertile markets for this desirable service, and explaining that while complete installations may not be possible in every case, partial installations are possible in many places that need some method of conditioning air.

Gas Best for Cooking

The delegates were treated to a description of unusual dishes found at different places on the earth by I. W. Peffly, vice-president of the American Stove Company. Mr. Peffly claimed that the best way to cook wolf cutlets, or octopus legs, in fact anything, is in a regulated gas stove. In a more serious vein, he warned the gas industry against neglecting its base load, the cooking business, in attempting to make special drives to reach out for new markets.

"Painting Gas Holders" presented by J. B. Boniface, chairman of one of the Technical Subcommittees, was of particular interest to operating men.

About 400 of the delegates enjoyed luncheon served at the hotel. During luncheon the Pennsylvania Railroad's Keystone Quartet sang several numbers. The afternoon session included songs by the "Colonial Maids," radio artists, and duets by Ralph Githens and Paul Boulton, of Public Service Electric and Gas Company.

Mid-West Gas Association

FRANK H. BROOKS, Omaha, general manager of the Northern Natural Gas Co., was elevated from the vice-presidency to the presidency of the Mid-West Gas Association which concluded a three-day annual convention April 17 at Omaha, Nebraska. H. M. Smith, of Waterloo, Ia., was named first vice-president; E. J. Boyer, Minneapolis, second vice-president, and R. B. Searing of Sioux City was re-elected secretary-treasurer.

Representatives of the American Gas Association who addressed the convention were: Alexander Forward, managing director, A. E. Higgins, secretary, natural gas department, and R. M. Conner, director, A.G.A. Testing Laboratory. Many other speakers of national prominence in the gas industry addressed the well-attended sessions on a wide range of subjects.

Pennsylvania Gas Association

THE annual convention of the Pennsylvania Gas Association, to be held May 7-9 at Skytop, Pa., will open with a banquet at the Skytop Club at 7:30 P.M., Tuesday, May 7. The feature address of the evening will be delivered by T. J. Grayson of the Wharton School, University of Pennsylvania. T. W. McDonald, vice-president and general manager, Pennsylvania Gas and Electric Company, and president of the association, will preside and deliver the President's Address.

Convention Calendar

MAY

1- 3 **Natural Gasoline Association**
Hotel Tulsa, Tulsa, Okla.

2- 4 **A. G. A. Distribution Conference**
Cleveland Hotel, Cleveland, Ohio

6- 9 **Natural Gas Department, American Gas Association**
Hotel Peabody, Memphis, Tenn.

6-10 **American Water Works Association**
Netherland Plaza Hotel, Cincinnati, Ohio

7- 9 **Pennsylvania Gas Association**
Lodge at Skytop Club, Skytop, Pa.

13-14 **National Fire Protection Association**
Biltmore Hotel, Atlanta, Ga.

13-14 **A. G. A. Joint Committee Conference of the Production and Chemical Committees**
Hotel New Yorker, New York, N. Y.

22 **Porcelain Enamel Institute**
Statler Hotel, Chicago, Ill.

31 **A. G. A. Executive Conference**
Atlantic City, N. J.

JUNE

3- 6 **Edison Electric Institute**
Mayflower Hotel, Washington, D. C.

10-11 **Canadian Gas Association**
Quebec, Canada

20-22 **Michigan Gas Association**
Grand Rapids, Mich.

24-28 **American Home Economics Association**
Palmer House, Chicago, Ill.

24-29 **American Society for Testing Materials**
Book-Cadillac Hotel, Detroit, Mich.

27-29 **N. Y.-N. E. Regional Sales Conference**
Griswold Hotel, New London, Conn.

SEPTEMBER

17-19 **Pacific Coast Gas Association**
Pasadena, Calif.

OCTOBER

14-18 **American Gas Association**
Atlantic City, N. J.

14-18 **National Association of Railroad and Utilities Commissioners**
Nashville, Tenn.

14-18 **Twenty-Fourth Annual Safety Congress**
Louisville, Ky.

NOVEMBER

11-14 **American Petroleum Institute**
Biltmore Hotel, Los Angeles, Calif.

Business sessions, starting Wednesday, May 8, and continuing Thursday, May 9, will include a strong program, which, for greater effectiveness, has been broken up into the following divisions: Distribution—Paul A. Fusselman, Philadelphia Electric Co., presiding; Accounting—J. W. Mackie, Chester County Light & Power Co., presiding; New Business—H. S. Christman, The Philadelphia Gas Works Co., presiding; Production—P. T. Dashiell, presiding. The program also includes addresses on air conditioning by Lyle Harvey, vice-president, Bryant Heater Co., Cleveland, Ohio, and merchandising by Walter G. Groff, president, Electrolux, Inc., New York.

The entertainment committee has prepared an attractive program to supplement business sessions.

Canadian Gas Association

THE twenty-eighth annual meeting of the Canadian Gas Association will be held June 10-11 at the Chateau Frontenac Hotel in Quebec. The advance program lists the following papers to be presented at the convention:

"Load Building Gas Rates," K. L. Dawson, Nova Scotia Light and Power Co., Ltd., Halifax; "The Use of Manufactured Gas in Industrial Bake Ovens," Jos. Fremont, British Columbia Electric Railway Co. Ltd., Vancouver; "Electrical Generation of Water Gas," Ivor Hole, Oslo, Norway; "Combustion and Utilization of Tar as Fuel," C. W. Delorey, Quebec Power Company, Quebec; "Various Industrial Fuel Applications with the Corresponding Apparatus and Gas Rates Warranting the Use of Gas Rather Than Solid or Liquid Fuels," O. L. Maddux, United Gas & Fuel Co. Ltd., Hamilton; "Meter Diaphragms," E. J. Turley, Montreal Light, Heat & Power Cons., Montreal; "Benzole Recovery," by nominee of the Montreal Coke & Mfg. Co., Montreal; "Extreme Low Temperature Effects on Gas Works and Mains," Henry Dunderdale and A. E. Paul, Winnipeg Electric Co., Winnipeg, Manitoba, and "Outdoor Gas Works," Henry Underhill, Bartlett Hayward Co., Baltimore, Md.

The entertainment program will include a visit to the Shrine of Ste. Anne de Beaupre, the Montmorency Falls, the Duke of Kent House, the Quebec Bridge and other points.

Michigan Gas Association

THE annual meeting of the Michigan Gas Association will be held in Grand Rapids, June 20-22. Headquarters will be at Hotel Pantlind.

The Arrangements Committee this year has selected week-end dates, the Convention ending at noon on Saturday, June 22. This affords the opportunity of combining business with a brief vacation in the resort section of Western Michigan, of which Grand Rapids is the Gateway.

The business portion of the program will warrant the attendance of everyone interested in the progress of the gas industry in Michigan. The mornings of Friday, June 21, and Saturday, June 22, will be devoted to the discussion of live, interesting gas topics. This is double the time given for business sessions at the previous two annual meetings.

While Thursday, June 20, is designated as the first day of the Convention, the business session for this day will not take place until evening. This evening meeting will be the usual joint session with the Michigan Electric Light Association, under auspices of the Utilities Information Bureau of Michigan.

A most attractive entertainment program for members, their ladies and guests, is being planned. Golf events, etc., will be at Blythefield Country Club.

Collins Likes Gas Range and Says So

KENNETH COLLINS, of New York, assistant to the president of Gimbel Brothers and widely known as the stormy petrel of advertising because of his sensational philippics on advertising practices, has the following to say in a recent issue of *Retailing:*

"I have been looking at a gas range that to me is just about perfection so far as gas ranges are concerned. I don't know anything about cooking, but I know the things I like to eat, and I observe that this gas range is equipped to really do the job. It has a very fine griddle of some sort on top that could be used for broiling or for making wheatcakes.

"I know, for example, that the lowly wheatcake is one of the most popular of all dishes in the average restaurant; and one that the average man gets acute indigestion from when he eats it in his own home.

"There isn't one housewife out of a thousand who knows how to make wheatcakes, but I don't think that's really her fault. She doesn't have the right kind of griddle that can take the heat slowly and diffuse it. In other words, she hasn't the tools at hand, and so we keep on throwing these soggy, indigestible things into our stomachs, while all the time we are begging for plain boiled eggs.

"Now the gas range I have been looking at and privately coveting would, I think, solve this distressing problem. As a matter of fact, I know it does because I have tasted wheatcakes made on top of it, and Child's in all its glory never made anything to compare with them. The particular range I have in mind apparently does a great many other things.

"It has more heat controls and methods of insulation and arrangements for special kinds of cooking and baking and broiling than I have seen on any other range."

Munroe Award Again Available

PRESIDENT P. S. YOUNG has announced the reappointment of Messrs. A. J. Gonnoud, President, Kings County Lighting Company, Brooklyn, N. Y.; H. L. Dickerson, Electric Bond and Share Company, New York, and Paul S. Clapp, Vice-President, Columbia Gas and Electric Company, Pittsburgh, on the Charles A. Munroe Award Committee, with Mr. Gonnoud as Chairman. This assures the continuation of the efforts of this committee to arouse enthusiasm and stimulate competition among A. G. A. member companies for the honor of having some employee within one of their organizations win the distinction of receiving this coveted prize.

Since the first award was made in 1929 to N. T. Sellman for his work in connection with the development and marketing of the gas refrigerator, the Charles A. Munroe Award has been presented yearly in recognition of widely different kinds of achievement. In this, as well as all other respects, the wishes of the donor, Charles A. Munroe, a former President of the Association, have been followed. Since 1929, the Award has been bestowed for accomplishments in machine bookkeeping, rate making, dealer cooperation, air-cooled refrigerator development, and industrial and domestic utilization. An outstanding accomplishment in any phase of gas company operation is eligible for consideration.

The award is presented annually to the individual who is judged to have made the greatest contribution to the advancement of the gas industry. In judging contributions the committee considers three factors—originality and completeness, scope of usefulness, and value of contribution. Applications for consideration in the 1935 award must be submitted to Association Headquarters on or before August 1, for presentation at the convention in October.

New Directors for Indiana Company

THE policy of placing representative business men on the board of directors of Northern Indiana Public Service Company was inaugurated at the stockholders' annual meeting at Hammond, Ind. William M. Gissin, president of the Wayne Company, Fort Wayne, and A. P. Colby, president of the Chicago and Calumet District Transit Company and president of the Gary Railways Company, were elected to the directorate.

James A. Kennedy and Guy M. Johnson were elected directors to serve until two other men, not employed by the company, are selected. Directors re-elected were John N. Shannahan, D. H. Mitchell, and Laurence K. Callahan.

Book Reviews

"Domestic Water Heating with Gas—A Manual for Salesmen," by Charles W. Merriam, Jr.

The author is division commercial manager of the Roanoke, Virginia, District Office of Consolidated Electric and Gas Company, and sometime ago recognized the need for educational material for the use of retail salesmen in a group of manufactured gas properties operating close to the Appalachian bituminous and the Pennsylvania anthracite coal fields. He originally prepared the material in this book in mimeographed form. It later proved to be so successful that it was expanded to its present format.

"Domestic Water Heating with Gas" is a 110-page booklet, bound in flexible imitation leather, 5" x 8", available at $1.50 per copy. Lots of one dozen or more are $1.25 each.

The book's principal value is as a salesman's handbook and for the study of discussion groups. Since it was originally intended for an area in which extremely active competition between coal and gas was encountered, it features a rather better than average insight into the engineering details of domestic water heating. Various chapters are devoted to types of gas water heaters and their accessories. Considerable attention is paid to the estimating of both the hot water requirements and the gas consumptions at various efficiencies. One chapter is devoted to the details of water piping and the appliance installation, and the last third of the book is entirely devoted to competitive aspects and to sales hints.

As far as is known, this is the first book which covers this subject in its entirety, but in spite of a well simplified form of expression, its greatest use probably will be through the medium of discussion groups rather than to trust individual salesmen to thoroughly assimilate this valuable data by themselves. It would be a splendid syllabus on which to base a course in domestic water heating.

—C. G. S.

American Society of Heating and Ventilating Engineers Guide, 1935. Published annually by the Society.

The thirteenth volume of this reference book just off the press reflects the ability of the profession to present its technical data in a useful and convenient manner.

The new edition features an improved index, a new psychrometric chart, a new department of problems in practice and more data and sketches for the heat transmission tables.

Those members of the gas industry who are being introduced to the subject of summer air conditioning will find the revised chapters on air conditioning and cooling of considerable interest. On the design side, the method of calculating the cooling load including heat transmission and the effect of the sun will be a technical aid.

—J. M. K.

The Handbook of Butane-Propane Gases. Second Edition. 9" x 12". 375 pages. Pub. by Western Gas, 810 S. Spring St., Los Angeles, Calif. $5.00.

In an industry whose commercial expansion has been as rapid as that of the liquefied petroleum gases, there is naturally a rapid change in the state of the engineering knowledge of the subject. To this end, the republication of The Handbook of Butane-Propane Gases in a revised Second Edition is most welcome.

The new book covers a considerably broader range of subject matter, adding nine entirely new chapters. Material has been also added in the original chapters to amplify the information and bring it in line with present practice. As in the First Edition, the book has been prepared by asking leading contributors to furnish material for specific chapters.

Interesting new features are the application of liquefied petroleum gases to the internal combustion engine, both in trucks and in locomotives, as well as sections covering gas refrigeration, agricultural forced production, and a great deal of new information on current practice for distributing bottled domestic gas and the use of liquefied petroleum gases in central distributing gas plants.

As in the previous edition, the book ends with a directory of central plants distributing propane and butane. Although no totals are given in this listing, it is interesting to approximate what the present status of this industry is. The population of the territory served totals 550,153, but the number of meters reported as active is only 30,172. A few companies report no active meters at all, apparently having omitted this figure on statistical surveys, but even after making allowance for them, the degree of saturation is one meter for every 27 of population served.

—C. G. S.

Spenders All, by Ernest Greenwood, 234 pages. Published by D. Appleton-Century Company, New York. $2.00.

In this volume the author deals with taxes from the standpoint of the uninformed individual whom he calls "John Public, alias The Sap."

"I call him 'The Sap,'" comments the author, "not because he is a simpleton, as the English use the word colloquially, or a congenital idiot, but because I can find no word more descriptive of his irresponsible attitude toward taxes and Government expenditures. As long as he endorses at the polls the policies and activities of our 500,000 Government spending agencies on the theory that they are spending someone else's money and not his, he is, to that extent, a simpleton—a Sap. He is just as much of a spender as a town council, a board of county supervisors, a State legislature or Congress itself. The only difference is that he is spending his own money without realizing it."

The forthright language used in the above is typical of Mr. Greenwood's belligerent denunciation of the growing tax menace. He spares no one's feelings and attacks the evil in simple, unadorned terms readily understood by the layman.

Taking up one branch of business after another, the author has the following to say about gas industry taxation:

"The gas companies are in exactly the same fix as the electric light and power companies. There are just as many charges by Government in John Public's monthly gas bill as in his monthly electric light bill. He thinks he is paying for gas. He is paying a joint bill rendered by the gas company, the national Government, the State, the county and his home town. It might surprise him to learn that in the metropolitan area of New York and New Jersey, and presumably elsewhere, the amount paid in taxes on one thousand feet of gas considerably exceeds the cost of producing this gas. The huge tax bill saddled upon the public utility corporations means higher costs of gas to the householder just as it means higher costs of domestic electricity."

The author emphasizes the fact that every employed person works for the Government two days out of every six.

In answering the question, "What Shall We Do About It?" he recommends that tax-ridden victims "join actively in the fight which is being conducted by taxpayers' associations against increasing taxation and Government waste; study intelligently the results of their investigations and conclusions; vote accordingly; and thus become a practical tax revolutionist."

—C. W. P.

Many Special Books

THERE must be at least 65,000 books in the world relating to municipal government, because that is the number of volumes in the Municipal Reference section of the New York Public Library. There must be at least 13,700 books having to do with the sea, because that is the number of volumes in the Scripps Institution of Oceanography at La Jolla, Calif. There are 8,700 books of interest to the American Gas Association. There are 90,000 volumes at the Metropolitan Life Insurance Company and 1,837 volumes on glass, ceramics and refractories at the Corning Glass Works in Castle Point, N. Y.

—*New York Times.*

ACCOUNTING SECTION

A. S. CORSON, Chairman H. W. HARTMAN, Secretary F. L. GRIFFITH, Vice-Chairman

Centralized Control of Customer Deposits

Special filing equipment and telephone tie-in used in deposit accounting. Center sliding trays contain alphabetical file and drawers contain numerical file.

By T. S. LEVER

The Philadelphia Gas Works Company, Philadelphia, Pa.

THE controversy over centralized and decentralized Customers' Accounting has been ardently supported by both sides in various fields of utility activity. So long as advantages can be claimed and disadvantages admitted in each camp, the issue will probably never be permanently settled.

Perhaps no field offers greater opportunity for this difference of opinion than that of Customers' Deposit Accounting. Here the elements of Customers' Relations, Credit and Collection activity and Accounting efficiency merit special consideration and require skillful coordination.

After considerable study which included the possible use of accounting machines, The Philadelphia Gas Works Company decided to centralize its Customers' Deposit records along with its other accounting procedures. A centralized control offered many advantages, and special provisions were made for what otherwise might have been disadvantages. A brief examination of the centralized deposit routine established, with the use of especially designed equipment, may be of general interest.

Originating Deposits

Recognizing customers' convenience as an important consideration, facilities are provided for formal deposit certificates to be issued at each of the Company's eight local offices when customers call and apply for service. Receipts are typed in triplicate. The original is given to the customer; copies two and three are forwarded with daily cash receipts summaries to the central control office. The forms are numbered serially, each district office being assigned a definite block of numbers for which it is held strictly to account by means of a numerical control at the central office.

Orders for service are accepted over the telephone and service is rendered immediately. Service men, in some cases, obtain signatures on applications; however, they never collect deposits. The Credit and Collection Division passes on each case and, if deemed advisable, procures deposits through correspondence or calls by collectors. Deposit receipts covering deposits so obtained are issued in triplicate by the Central Office, which has its own block of serial numbers. The original is mailed to the customer.

The second and third copies of all deposit receipts issued are checked and the amounts entered in the master Deposit Control Record and subsidiary control sheets maintained at the Central Office, after which the second copies are filed alphabetically and the third copies are filed numerically, as described below.

Supplying Deposit Information

Since no records are maintained in the local offices, the central office must be consulted for all deposit information. It is at this point that the greatest care must be exercised to prevent difficulties and delays in getting accurate information. Such delays would impair service, increase operating costs, and defeat a centralized plan.

The Management anticipated and solved this problem in three ways.

1. Special files were designed by means of which approximately 100,000 deposit records are kept within easy reach of four clerks. This file is comprised of the third copies of the receipts, arranged in numerical order. From these records information as to the status of each account may be obtained at a glance.
2. An alphabetical file of the second copies was also provided in such manner as to be readily accessible to the same clerks, to serve as quick reference. Both numerical and alphabetical files are contained in a unit similar to the one illustrated in Wrinkle No. 121 in the 1934 "Wrinkles" compiled by the A. G. A. Accounting Machines Committee.
3. Special telephone facilities were designed so that calls from the local offices come directly to the clerk handling the particular group of records concerned. This is accomplished by means of the automatically controlled telephone system used throughout this Company's offices.

The filing equipment explained above and the telephone tie-in are shown in the accompanying illustration.

Since a large percentage of calls involves the refunding of balances due customers after applying final gas bill charges, particular attention was given to the establishment of a close tie-in with the Customers' Accounting Division. This was accomplished by locating the Deposit Section near the Final Bill Section and providing ready access to the meter index information carried on the Customers' Accounting record stubs and recently completed shut-off orders. By means of these

Contribution of Accounting Machines Committee.

safeguards centralized operation of Deposit Accounting has substantially reduced the time formerly required to make cash refunds in the local offices.

Maintaining Deposit Records

Having established an effective method of obtaining accurate deposit information quickly, arrangements were made to take the utmost advantage of the centralized plan. For convenience of handling, the deposit accounts were divided by the serially numbered receipts into four major controls, each of which was subdivided into ten to fifteen minor controls. The dividing numbers are subject to change from time to time as old deposits are refunded and new accounts obtained, the object being to keep about 20,000 to 30,000 accounts in each major group. One clerk is responsible for the maintenance of all records pertaining to each major control and for balancing the subsidiary controls at least once every three months. A master deposit control record ties in the figures of the four major controls with the general ledger accounts.

Under decentralized operations, when a customer moved from one district to another the troublesome problem was encountered of transferring deposits in and out of subsidiary geographical controls. Under centralization this problem is avoided by using the serially numbered accounts for the balancing and supporting media. The alphabetically filed receipt copies, upon which are noted any changes of customers' addresses, serve as a cross reference file where the deposit number must be obtained.

Refunds of Deposits to Customers

A refund to a customer of a deposit is accomplished as follows:

1. Customer calling office and requesting a refund of deposit after service has been discontinued.

   The customer is cared for by a contact clerk, who secures from the Deposit Section by telephone the status of the customer's gas and deposit accounts. The Deposit Section locates the record of the deposit and calculates interest to date of discontinuance of service. The contact clerk adds the interest on the customer's original deposit receipt, originates a bill in duplicate, and presents both to a teller. The teller refunds or collects the difference and returns the receipted original of the bill to the contact clerk, who gives it to the customer. The duplicate copy of the bill is included with the day's receipts and subsequently posted to the customer's account. The original deposit receipt, showing accrued interest thereon, serves as a voucher for reimbursement of the Petty Cash fund, which is used to pay the deposit, and remains as part of the monthly records covering Petty Cash disbursements. A record of the refund is noted on the alphabetical copy by the Deposit Section and is retained in the alphabetical file so that subsequent inquiries regarding deposits may be answered quickly. The numerical copy is also noted and is transferred from the open file to a "paid-out" file in numerical sequence.

   When the customer cannot present his original deposit receipt, a duplicate copy is prepared, which is signed by the customer. After satisfactory identification is established, this copy takes the place of the original in the procedure described above, except that where the amounts are large the refund is preferably made by check.

2. Application of deposits to final bills when customer does not call at office.

   When gas service is discontinued and customer is going off the line, customer's account is transferred via the Deposit Section to final bill accounts. Deposit records are searched and deposits with interest are automatically applied to final bills. Any credit balance is sent to the customer by check either to his last address or to a given forwarding address at the time final bill is forwarded. When a debit balance remains the customer is sent a final bill showing the amount due after application of deposit and interest. When necessary, further collection effort is applied in accordance with circumstances governing each case. The alphabetical and numerical deposit records are posted and filed as described under No. 1 above.

Additional Advantages of Centralization

With the centralization of all deposit records, information is made more readily available for credit and collection purposes. What is of even greater importance, concentration of the deposit records in one place increased its volume to a point where standardization of routine and specialization of labor could be advantageously applied and better supervision afforded. Not only did decentralized deposit accounting require more clerks and floor space, but a somewhat larger volume of work is now being accomplished more satisfactorily with less personnel and floor space.

There is no doubt but that centralization of Deposit Accounting has placed greater responsibility on Management to supply higher calibre supervision, but this being satisfactorily provided, it has unquestionably afforded opportunity for increased efficiency and lower operating cost.

Libraries are Grateful for Book on Smoke

THE Association recently issued a complimentary copy of the book "Stop That Smoke!" by Henry Obermeyer to a number of leading libraries in cities and towns located in bituminous coal burning territories. In each case, acknowledgment of the book was promptly made and the replies show that the subject matter of the book is of direct interest to the librarians.

A few of the typical comments received are, "We very much appreciate this book, as it is particularly applicable to this city." "As I am very much interested in stopping the smoke in this town I will try to get our Chamber of Commerce interested in the book." "This beautiful white marble building has suffered not a little from the soft coal smoke belching from our neighbor's chimneys, and you may rest assured we shall lose no time in cataloging your book and in promoting its circulation." "The book will be particularly popular with our club women who have talked 'smoke' for many years." "This book ought surely to accomplish a decided move towards the abatement of a great nuisance."

Municipal Gas Operations in Richmond

CLEARLY and succinctly written, well illustrated, the annual report of George H. Whitfield, Director of the Department of Public Utilities of the City of Richmond, Virginia, is also a valuable historical document, containing extracts and pictures from early records of undoubted interest and importance in the city's annals. The following extracts from the report will be of interest:

"The principal increases in expenses were in the Gas Division and were caused by the replacement of a relief holder at the Gas Works and by higher prices for supplies. Coal and oil increased $94,781 over the previous year and it was impossible to offset all of this by other economies. It is just too bad that the entire cost of replacing the holder must be charged this year but one of the defects in the method of accounting used by the City of Richmond is the lack of reserve for the retirement of equipment."

* * *

"Mr. Livingston deserves much credit for the addition of 7 central heating plants, 27 unit heaters and a number of commercial installations but a very poor record was made in kitchen business because this business was not properly promoted. Permit me to quote a recent decision of the Supreme Court of the United States in rejecting a claim that certain money spent in the endeavor to procure new business was unnecessary and wasteful:

" 'The criticism has no basis in evidence, either direct or circumstantial . . . . the suggestion is made that there is no evidence of competition. We take judicial notice of the fact that gas is in competition with other forms of fuel, such as oil and electricity. A business never stands still. It either grows or decays. . . . . When a business disintegrates, there is damage to the stockholders, but damage also to the customers in the cost or quality of service.' "

COMMERCIAL SECTION

F. M. ROSENKRANS, Chairman J. W. WEST, Jr., Secretary C. E. BENNETT, Vice-Chairman

Range Contest Gains Momentum

THE National Gas Range Sales Contest, sponsored by the Domestic Range Committee, has been in full swing since March 1, the beginning of the fourth months' period of the contest. With nearly three hundred gas companies registered the contest is being aggressively promoted in territories having 9,000,000 meters, representing 60% of the total domestic meters in the country.

Chairman H. M. Brundage, Jr., has recently communicated with each registered company requesting information on the progress of their campaigns but the full results of the campaign in stimulating sales will not be known until each company has filed its final sales report.

Practically all of the companies are working closely with gas range dealers in their territories with the hope of coming within the winning class in their division and gaining a good share of the $9,000 in cash prizes.

Gas range manufacturers are aggressively promoting the contest in their contacts with gas companies. Many gas companies are offering special company prizes to their salesmen and dealers, in addition to those available from the national contest.

A last minute addition to the contest was the decision of the International Nickel Company to offer prizes of $50 to the salesman or saleswoman in each of the six sales contest divisions who sells the most number of gas ranges equipped with Monel Metal tops. These sales people may be either those of public utility companies or dealers.

For full details of the National Domestic Range Contest see the current issues of the contest magazine, *Mgr Merchandising*, available from the Domestic Range Committee, Association Headquarters.

Copper Tubing Bulletin

AT a meeting of the Subcommittee on Copper Tubing of the Water Heating Committee held at Association Headquarters, March 26, it was decided to prepare a written discussion of field experiences with copper tubing together with exhibits prepared by members of the subcommittee for publication in the form of an interim bulletin. This bulletin is expected to be available shortly. Anyone having experience with copper tubing on water heaters is urged to send data on his results to K. DeHart, chairman of the subcommittee in time for inclusion in the report.

Following is the introductory statement of the forthcoming bulletin:

Purpose

1. To determine and evaluate the claimed advantages to be obtained by the use of small sizes of copper tubing for hot water supply systems in place of the present conventional use of relatively larger sizes of iron or brass pipe.
2. Subject to the evaluation of these advantages under paragraph 1, to obtain all pertinent information relative to the installation and operation of such systems.

Program

1. Reports of practical field tests obtained from three companies.
2. A chart, based on actual tests, showing the flow of cold water through small sizes of copper tubing.

Conclusions

1. The proposal to use copper tubing has been shown to be definitely desirable from a standpoint of ease of installation and quicker hot water service.
2. The proposed systems are based on very definite *theoretical* operating economies.
3. Field experience to date indicates that in many cases where large gas water heating bills can be accounted for by poor piping conditions definite operating economies are to be attained by this plan.

Those present at the meeting were: K. DeHart, chairman, E. J. Devlin, C. S. Hazel, J. M. Rohde, Jr., A. F. Sheldon, W. S. Walker, C. George Segeler, and J. W. West, Jr.

Sales Program Launched

THE Mississippi Power and Light Co. on April 1 launched one of the most comprehensive and intensive merchandise sales programs in its history.

Mississippi homemakers are being invited to modernize their home through the use of the slogan "Crown Yourself Queen of Yohomia." Yohomia is featured as "The empire within the walls of your home."

Planned for a duration of ninety days, the Yohomia campaign will be the keynote of 1935 selling to Mississippi women. Since home modernization will be the theme, and since the company has as its 1935 objective the selling of all services, April, May and June will be the period of an intensive sales campaign featuring those appliances that will render the greater home service.

G. W. Godwin, advertising manager of the company, is responsible for the promotion of the campaign.

Gas Refrigerators Replace Electric

INTERESTING data on the characteristics of several hundred electric refrigerators replaced by gas refrigerators by the Sales Department of The Philadelphia Gas Works Company are revealed in a recent report of that company.

Of the total number of electric refrigerators replaced, approximately two-thirds were made by eight prominent manufacturers of electric refrigerators now actively engaged in the business, while the remaining one-third were produced by nineteen other manufacturers of electric refrigerators no longer in the business or operating on a relatively small scale.

Eighty-three per cent of the electric refrigerators replaced were five years old or less, the age of the electric refrigerators at time of replacement being:

Years	Per Cent	Years	Per Cent
0 (under 1 yr.)	36%	5	18%
1	8%	6	11%
2	6%	7	5%
3	6%	8	1%
4	9%		
			100%

Sixty-two per cent of all the electric refrigerators removed were replaced, according to the customer's statement, because of being noisy, worn out or broken down. The various reasons given by the customer for replacement were:

Reason	Per Cent	Reason	Per Cent
High Cost	13%	Liked Electrolux Better	6%
Noisy	15%	Unsatisfactory	19%
Noisy and High Cost	15%	Unit Lost Charge	1%
Worn Out	18%	Would Not Hold Temperature	1%
Broken Down	10%	Unknown Reason	2%
			100%

INDUSTRIAL GAS SECTION

J. F. QUINN, Chairman C. W. BERGHORN, Secretary C. W. GALE, Vice-Chairman

Discussion Is Animated at Chicago Symposium

T. J. Gallagher

FOLLOWING a symposium on the hotel and restaurant business a year ago in Pittsburgh, the Industrial Gas Section held another symposium in Chicago, March 22, which helped materially in developing a better understanding of this highly important gas industry activity. More than a hundred were in attendance and participated in a highly factual and inspirational meeting under the leadership of T. J. Gallagher, chairman of the Hotel and Restaurant Committee.

T. V. Purcell, vice-president, The Peoples Gas Light & Coke Company, welcomed the delegates to Chicago. Following Mr. Purcell, Alexander Forward, managing director of the American Gas Association complimented the Industrial Gas Section for the intelligent and comprehensive way in which it attacked its problems.

The paper on "Dealer Cooperation" by I. S. Anoff, president, Albert Pick Company and chairman, Food Service Equipment Industry, Inc., proved of particular interest and is reproduced elsewhere in this issue. Discussion of Mr. Anoff's paper brought to light the difficulty often found in cooperating with dealers, many of whom do not cooperate with themselves. The advantages of such cooperation in keeping competitive fuels out of the picture were stressed.

Customer Relations

In considering the subject of "Customer Relations" Ralph L. Manier, Syracuse Lighting Company, Syracuse, N. Y., stated his belief that proper public relations are more important in obtaining and maintaining gas load than gas rates. The three essential customer contacts of sales, service and credit were discussed by Mr. Manier in outlining the customer relations procedure followed by his company. Syracuse used to sell hotel and restaurant equipment, he said, but found this policy an obstacle to good customer relations. Now they do not sell kitchen equipment, with the result that there are only nine kitchens in Syracuse large enough to require heavy duty equipment that are not gas-fired.

Mr. Manier was followed by C. H. French, Standard Gas Equipment Corp., and W. J. Hill, Detroit-Michigan Stove Company, who covered the subject of "Hotel and Restaurant Sales Promotion from the Manufacturer's Viewpoint."

Mr. French sounded a note of warning as regards competitive fuels and stated that now is the time to beat the opposition before it gets started. In recent years the sale of equipment has largely been for replacement, and in the coming year the speaker felt that the replacement business offered the best opportunities—particularly when it is considered that fuel savings of 25-50% may be realized. Attention was called to the limited appropriation spent last year by the Association in hotel and restaurant advertising, with nothing being spent this year. Since few of the equipment manufacturers advertise nationally, Mr. French was of the opinion that competition is being given a considerable opening.

Obsolete Equipment

Stressing the need for the replacement of obsolete equipment, Mr. Hill declared it was better to reduce a gas bill by improved equipment than by lower gas rates. The gas range manufacturers have placed at the disposal of the gas industry new and better appliances constructed to please the customers and reduce gas bills—a great step forward in the development of the gas business and in the retention of present gas load. Mr. Hill commented on the fact that 1934 figures for companies reporting to the American Gas Association showed that only some half million dollars worth of heavy duty gas equipment was sold.

In discussing the presentations by Mr. French and Mr. Hill, Robert Patrick, The G. S. Blodgett Co. Inc., told of the potentialities of the cabinet-type bake oven if the proper promotional effort were put behind it. He estimated that of 50,000 such gas ovens in the country, 90% should be replaced as obsolete from the standpoint of insulation and controls.

Robert H. Staniford, The Brooklyn Union Gas Company, speaking on "Modern Appliances for Volume Baking and Cooking," asked this question, "Has the equipment available been perfected to the point of satisfaction?" Mr. Staniford then went on to say that if the answer is in the affirmative all we have to do is go ahead and sell it. However, the evidence of last year's sales of only one half million dollars in heavy duty equipment gives cause for wonderment as to whether the equipment really is altogether satisfactory. To determine this fundamental point the speaker suggested a small committee be formed to consider whether present equipment is satisfactory, and if not, what is needed. Competition is very keen, he said, and the industry must fortify itself in every possible way. Mr. Staniford felt that the gas utilization engineer should not get into the state of mind of believing that present equipment is fundamentally satisfactory until every other approach has been exhausted. The conference voted to appoint the special committee as suggested.

The always important subject of "Competitive Fuels" was handled capably by C. George Segeler, American Gas Association. The importance of the magnitude of the present hotel and restaurant load was stressed, and the need outlined for a broad program to avoid getting into the same dilemma regarding this market as is now apparent in the baking field. Now is the time, by proper rates, to spread the gap between gas and electric costs thus preventing later need for more drastic defense. There is less competition in the gas kitchen today than in any other phase of gas sales but this may change any time and steps should be taken to make our present position permanent. Mr. Segeler called particular attention to the present electric competition—competition not stimulated by the electric companies but by political pressure. "The handwriting on the wall definitely tells us that electric rates are coming down," he said. "The power companies are introducing objective rates and there is no better market on this rate than the commercial kitchens."

Direct-Mail Advertising

In the active discussion following Mr. Segeler's talk several of the delegates expressed themselves as feeling the hotel and restaurant load could be held with present rates.

The service that direct-mail advertising can render in the hotel and restaurant field was presented in detail by Fenton Kelsey, president, Fenton Kelsey Company, in a paper on "Advertising in the Hotel and Restaurant Field." Mr. Kelsey said that executives are likely to delay advertising until competition threatens and then to hastily spend money wastefully.

The procedure followed by his company was detailed by Roy E. Wright,

Cambridge Gas Light Company, in a talk on "Servicing Hotel and Restaurant Equipment." Mr. Wright considers gas the most wasted fuel on the market today. He feels we must show the customer we really mean to help him keep his gas bill down, and if this is done customer good will is obtained and competition overcome. At Cambridge, commercial customers are contacted at least once every six weeks, he pointed out. The contacting salesman has three distinct functions, viz: (1) looks around kitchen to see that gas is being used economically in the kitchen in question; (2) sees that the customer gets service; (3) sells the customer new equipment and replaces competitive equipment.

Joseph F. Quinn, chairman, Industrial Gas Section, American Gas Association, sounded a note of optimism for the hotel and restaurant men in his closing remarks. Mr. Quinn stated that comparing January, 1935, hotel and restaurant equipment sales with those for the previous January he found an increase of 69% in dollar volume and a 56% increase in the number of units sold. For February, 1935, the figures were even better, being 92% and 71% respectively. Fully appreciating the value of the load represented by the hotel and restaurant business, Mr. Quinn recommended that continued emphasis be given to this phase of gas industry activity.

Dealer Cooperation

By I. S. ANOFF

President, Albert Pick Co., Chicago, Ill.
Chairman, Food Service Equipment Industry, Inc.

I. S. Anoff

IT might be well to preface my remarks with a few words as to what might have prompted a discussion on "Dealer Cooperation." The dealer in this case is the food service equipment dealer or kitchen-equipment firm catering principally to hotels, restaurants, clubs and institutions, and the problem is in relation to their experiences with the gas company.

There is no doubt but what the gas company and the dealer have had their share of troubles in competing with each other in the sale of gas burning appliances and kitchen equipment. Probably each of us considered our side of the question as being right and were content to let it go at that, never considering the other fellow. Here, then, is where our trouble began.

However, to use the old adage: "Two wrongs do not make a right," the food service equipment dealer feels that he has a grievance in the fact that his problem has not been considered and that the gas company should be content to sell gas—and let it go at that. No doubt the gas company has a similar grievance. So we want to find a suitable way of solving this problem.

In recent years we have had an opportunity of meeting with the American Gas Association Committee on Hotel, Restaurant and Food Products, as well as T. J. Gallagher, who has spent much time with us. We are thankful for this service and the opportunity of getting together and airing our troubles. We have reached the point where we understand each other's problems and are working to gradually improve them.

* Presented at the A. G. A. Hotel and Restaurant Symposium, Chicago, March 22.

It is commonly believed that gas companies generally are most concerned with the problem of increasing the sale of gas and its by-products: in fact, their very existence depends upon them. So we start with the premise that the gas company does not actually want to sell heavy duty kitchen appliances if some way can be devised that will relieve them of this work and still not affect their gas sales.

With this as a forenote, let us start by saying that the complaints of the food service equipment dealer against the gas company are varied, but principally they are:

1. Selling heavy duty gas equipment at short profit and in some cases at cost.
2. Competing with food service equipment dealers in the sale of kitchen equipment.
3. Offering unusually long credit terms.
4. Selling kitchen equipment that is not a gas burning appliance.

Dealer Service

Because the sale of this equipment is of prime importance to the food service equipment dealers, we are anxious to approach the subject in a practical way, hopeful of a satisfactory solution. You doubtless know that the food service equipment dealer renders a unique service. When selling kitchen equipment, they inspect the premises, making plans and specifications. In the aggregate these plans and specifications are quite costly; the only way the dealer can be compensated for this service is by getting the business for the merchandise specified.

It may seem strange, but it is an old custom among kitchen equipment firms that the customer can have this service free. Admittedly, it would be grand if we could get the customer to pay someone for this engineering service, much the same as one engages an architect, and then buys his equipment where he chooses. Some of the members of our industry have been trying to correct this situation, but this is another problem.

Now, since the dealer is called upon to survey the premises and prepare specifications, all of which is predicated upon his ability to handle the job in its entirety, we wonder why it happens so often that the gas company is injected into the deal and becomes a real contender for the sale of kitchen equipment?

Usually, through building permits or some such manner, the gas company knows where new equipment is to be installed; in such cases, in the larger cities, they can contact the various food service equipment dealers that may be figuring on that particular job and see that the right kind of equipment is being specified. The same can be done in smaller towns where the dealer is from some other city, or it would be no effort at all for the gas company to have the customer refer the kitchen engineer to them so they can approve the equipment specified. This will do away with the many profuse apologies the dealer gets frequently from the customer because for various reasons, he wants to place a part of his order with the local gas company.

Mutual Aid

The fact remains that the dealer is trying to sell the kind and type of equipment that he believes should be installed, and this usually includes gas burning equipment. That being the case, why should not the dealer get the benefit of the entire sale?

It is suggested that where these conditions exist that the local gas company make their recommendations to the customer as to what should be used, and then leave the matter to the customer to buy from any recognized food service equipment dealer. In such cases, the gas company can always contact the kitchen equipment dealer to cooperate and *vice versa.* The natural results of this cooperation will enable the dealers and the gas company to get better acquainted. As a result, instead of being competitors, their trend of thought will be more constructive and they will be trying to devise means of increasing the sale of gas cooking appliances.

Efficiency in business is vital. If we improve our method of taking care of sales for new equipment, we will also learn that it is to our mutual advantage to have our customers use economical and efficient equipment. As we get better ac-

quainted, why should we not work out a plan to replace all the old and inefficient equipment on the market? This would work wonders for both of us.

What percentage of hotels, restaurants and food service establishments have modern type gas burning equipment? You will admit that the percentage is very low and that there is a big job to be done. With this fact established, we should team together and keep the public gas minded by having them use efficient gas burning equipment so as to render satisfactory service.

In the past two years it has been my privilege to have met with the A. G. A. committee to discuss these problems at length. I realize that there are grievances on both sides, and rightfully so. But they must be corrected through a mutual understanding starting with a few simple rules and, progressing from that point. During the past five years the Chicago dealers have had the good fortune of having the cooperation of Mr. Gallagher and The Peoples Gas Light and Coke Co., and we have found the relationship beneficial to all. As dealers we know of the local gas problem and try to sell the right equipment for the job; because of this cooperation it has relieved our Chicago market from much competition from other fuels.

I would like to add that our local situation has been working out so well that other cities have heard of it and are trying to pattern their plan after it. Not only have we the cooperation of the gas company, but the two leading gas range manufacturers have confined the sale of their equipment to the Chicago members of our association. The result is that market prices have become stabilized and we are concentrating on the sale of better equipment. In fact, we are now talking about conducting a sales campaign with the aid of the gas company and the range manufacturers which will enable us to replace many of the obsolete, inefficient ranges and other equipment. Through cooperation, similar plans should be successful everywhere.

Credit

Credit is another part of the program that needs some discussion. We believe that when a customer wants to buy a new gas appliance that he should not be offered some credit or payment arrangement that would be impractical from a good business standpoint. Admitting that the appliance will save the customer money, will reduce his fuel bills, and all the other things that we know it will do, why, in the name of common sense, do we have to resort to some fancy terms—to take payments based upon fuel savings or, some unusually long period of time in which to make payments? That is just as bad as selling the goods at your cost, for no merchant can meet that kind of competition. Is it not fair to assume that if the customer is going to get all the benefits of efficiency and economy, that the least he can do is to pay for it on some basis that any reliable merchant would be willing to sell him on?

With all the beauty, efficiency and economy of the new automobiles, no one as yet has offered to take in your old car and let you pay for the new one on the basis of the gas, oil or tire savings. This problem is easily solved by letting the dealer carry these accounts. If it is necessary to grant terms, meet the dealers' requirements of a cash payment of one-third and the balance payable in monthly installments not to exceed one year, presuming, of course, that the order is large enough and the customer's credit justifies it. To help solve this problem I offer these suggestions:

1. Let the food service equipment dealer handle the sale of heavy duty gas kitchen appliances.
2. If it becomes necessary to quote prices, adhere to established list prices.
3. Avoid offering extended time payment contracts on heavy duty equipment; the dealer is prepared to do this.
4. The active kitchen equipment dealer is a better prospect for the gas company than the average customer, for he is selling appliances using gas; make him your friend by contacting him oftener.

Educational Meetings

Here is another suggestion that may help matters. In your respective companies you employ engineers, and the efficiency of your work or product is in a measure dependent upon the work of this technical crew. Why would it not be a good idea for the gas companies in larger cities to invite the local food service equipment dealers to a series of meetings for the purpose of educating their kitchen engineers and salesmen about those things they should know in order to render more efficient service to your customers?

You can give them an elementary session on the component parts of gas and explain its commercial uses, as well as make comparisons as to its efficiency and economy compared to other fuels. From there we can go into what is considered the right kind of equipment for an intended purpose. You can explain what constitutes a good gas burner and in general give these people the type of education that will better enable them to decide the way things should be done from the standpoint of the gas company.

This, it seems, would be increasing your own sales organization without any expense and quite naturally it should result in more sales of gas appliances. The greater our selling knowledge the more confidence we have in our ability to serve promptly.

As Chairman of the Food Service Equipment Industry, Inc., our trade association, I offer the facilities of our organization to the gas company that wants to undertake a cooperative program in its locality. We will assume the task of getting together dealers in your territory, even though they may not be members of our association. This, I feel confident, will help get things started in the right direction. The problems must actually be worked out through meetings of local groups. Once these meetings are started, the rest is going to be easy, particularly if both groups are intent on doing the job right.

With an improvement in business will come the greatest boom in the sale of modern gas burning equipment that we have ever experienced. Let us prepare to do the kind of job that will reflect credit to both of us. We are serving the same customers with but one thought in mind. Proper cooperation between the dealer and the gas company is not an idle dream but offers a practical solution to the problem. The directors and members of the Food Service Equipment Industry, Inc., will be pleased to do their part in making such a plan possible.

Advertises Gas-Fired Hotel Equipment

BELIEVING that heavy duty gas-fired hotel equipment should be actively promoted through the medium of newspaper advertising, the Alabama Natural Gas Corporation has recently sponsored some very effective advertising of this nature. A four-column ad appears in the Talladega *Daily Home* listing the principal hotels, restaurants, hospitals, and educational institutions of the country which use heavy duty gas-fired appliances for the preparation of food.

The ad closes with the following: "Rely on your gas company for first-class equipment that has stood the test, and will give you excellent and economical service. The above well-known names should be convincing."

Elsewhere on the same page with the large ad appears a reading notice, as follows:

"Perhaps you are still in doubt and cannot decide which is best for cooking. Then look at the well-known names in our large ad in this issue and you will see that gas is the choice of these famous concerns. So why hesitate any longer?"

According to C. H. French of the Standard Gas Equipment Corporation, the advertising described above is not generally promoted by gas companies. He is strongly of the belief that if more advertising of this nature were done it would help materially in securing additional installations of heavy duty gas equipment in more of the leading institutions of the country.

Export Information

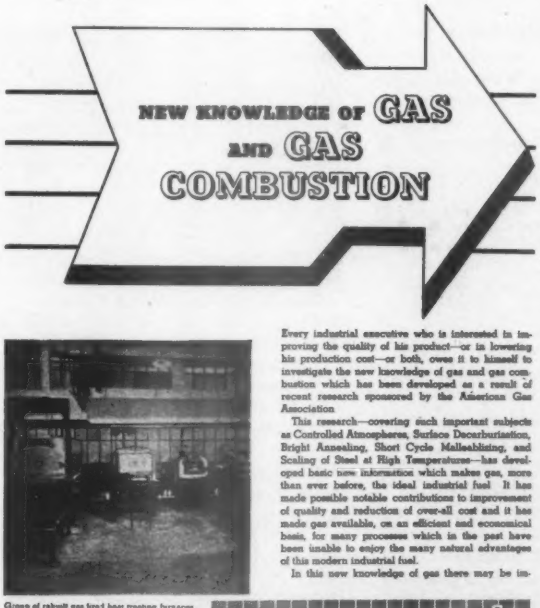
THE policy of the Federal Government is to strengthen our trade relations with foreign countries, especially with South America, in order to stimulate export business. For information as to the commodities involved in such proposed agreements with South American countries, manufacturer company members of the Association are advised to address William A. Reid, Foreign Trade Advisor for Pan American Union, Washington, D.C.

Industrial Gas Advertisements for June

BAKE WITH GAS!
CLEAN
EASILY REGULATED
INSTANTLY AVAILABLE
QUICK HEATING
SAVES TIME, SPACE AND LABOR COSTS . . .
AND NOW! NEW RESEARCH SHOWS HOW GAS CAN MAKE SUBSTANTIAL SAVINGS IN BAKING COSTS, TOO.
For the most advanced information and research data on the use of gas in baking—and for a free copy of a research report entitled, "The Application of Heat to Bread Baking"—see your local gas company industrial engineer, or write direct to the American Gas Association.
La Sere
to send for free copy of "Application of Heat to Bread Baking." Address your local gas company or American Gas Association.
AMERICAN GAS ASSOCIATION
INDUSTRIAL GAS SECTION . . . 420 LEXINGTON AVE., N. Y. C.

Left—Reproduction of full-page advertisement which will appear in Bakers Weekly, *June 1, and* Bakers Helper, *June 15*

Below — Reproduction of double-page advertisement which will appear in Iron Age, *June 6, and* Steel, *June 17*


NEW KNOWLEDGE OF GAS AND GAS COMBUSTION
Every industrial executive who is interested in improving the quality of his product—or in lowering his production cost—or both, owes it to himself to investigate the new knowledge of gas and gas combustion which has been developed as a result of recent research sponsored by the American Gas Association
This research—covering such important subjects as Controlled Atmospheres, Surface Decarburization, Bright Annealing, Short Cycle Malleabilizing, and Scaling of Steel at High Temperatures—has developed basic new information which makes gas, more than ever before, the ideal industrial fuel. It has made possible notable contributions to improvement of quality and reduction of over-all cost and it has made gas available, on an efficient and economical basis, for many processes which in the past have been unable to enjoy the many natural advantages of this modern industrial fuel.
In this new knowledge of gas there may be important information bearing directly on your own problems. So get in touch with your local gas company industrial engineer—right now! He will be glad to make a thorough analysis of your present heating processes and to show you, without charge, just how and to what extent you can profit through the modern use of gas.
IMPROVES QUALITY OF PRODUCT
REDUCES SPOILAGE LOSS
SPEEDS PRODUCTION and
CUTS OVER-ALL COST
Group of rebuilt gas fired box treating furnaces
CONSULT YOUR LOCAL GAS COMPANY
about important new research data on gas. It may have a direct bearing on your own heating problems
GAS THE MODERN INDUSTRIAL FUEL
AMERICAN GAS ASSOCIATION
INDUSTRIAL GAS SECTION . . . 420 LEXINGTON AVE., NEW YORK CITY
Gas fired nitriding furnace
Battery of gas heated hardening and annealing furnaces
IMPORTANT!
Copies of the following research reports are available to interested executives, WITHOUT CHARGE.
1. The Influence of Atmospheres and Temperature on the Behavior of Steel in Forging Processes.
2. The Surface Decarburization of Steel at High Temperatures.
3. Baking Practice for Oil—Sand Cores.
4. The Application of Heat To Core Baking.
5. The Effect of Quenching Temperatures on the Localization of Quenching Cracks.
Bulletin No. 1 Study of Combustion Characteristics of Natural Gas With Preheated Air.
Bulletin No. 2. Practical Explanation of Newly Developed Combustion Knowledge.
6. A Study of the Characteristics of Burning Gas With Preheated Air.
Ask your local gas company, or write direct to American Gas Association, 420 Lexington Avenue, New York City.

TECHNICAL SECTION

C. A. HARRISON, Chairman — H. W. HARTMAN, Secretary — F. A. LYDECKER, Vice-Chairman

Production and Chemical Conference To Be Held in New York

THE Joint Committee Conference of the Production and Chemical Committees will be held at the Hotel New Yorker, New York, N. Y., May 13-15.

The following tentative program has been developed by a committee composed of K. B. Nagler, Chicago, Ill.; S. S. Tomkins, New York, N. Y.; A. E. Lockwood, New York, N. Y.; J. F. Anthes, Brooklyn, N. Y., and Louis Shnidman, Rochester, N. Y.

Monday

May 13—10:00 A.M.

Opening Remarks
K. B Nagler, Chairman
Gas Production Committee
Chicago, Ill.

Greetings
Alexander Forward, Managing Director
American Gas Association

Presentation: THE TECHNICAL MAN'S PART IN THE FUTURE DEVELOPMENT OF THE GAS INDUSTRY
W. C. Beckjord, Vice-President
Columbia Gas & Electric Co.
Pittsburgh, Pa.

Report: WATER GAS SUBCOMMITTEE
W. K. Beard, Chairman
The Philadelphia Gas Works Co.
Philadelphia, Pa.

Paper: CARBURETTED WATER GAS FROM HEAVY OILS WITH RELATED TAR AND EMULSION PROBLEMS
F. B. Parke
The Brooklyn Union Gas Co.
Brooklyn, N. Y.

Paper: HEAVY OIL TAR HANDLING AND EMULSION TREATMENT
P. T. Dashiell
The Philadelphia Gas Works Co.
Philadelphia, Pa.

2:00 P.M.

Opening Remarks
S. S. Tomkins, Chairman
Chemical Committee
New York, N. Y.

Paper: THE SELECTIVE REMOVAL OF LIQUID-PHASE GUM-FORMERS AND NAPHTHALENE BY OIL SCRUBBING
A. R. Powell
Koppers Construction Co.
Pittsburgh, Pa.

Paper: DEVELOPMENT OF ANALYTICAL METHODS FOR THE DETERMINATION OF NITRIC OXIDE IN GAS
W. H. Fulweiler
The United Gas Improvement Co.
Philadelphia, Pa.

Paper: FOGGING OILS AND GUM FORMATIONS
H. R. Mathias
Standard Oil Co. of Indiana
Chicago, Ill.

Paper: PROGRESS IN PURGING PROCEDURES
H. W. Alrich
Consolidated Gas Co. of New York
New York, N. Y.

Tuesday

May 14—10:00 A.M.

SYMPOSIUM ON HIGH B.T.U. GAS

Mid-Continent Practice
L. J. Willien
Byllesby Engineering & Management Corp.
Chicago, Ill.

The Production of High B.t.u. Gas in a Carburetted Water Gas Set with Particular Reference to the Use of Heavy Oil
W. K. Beard
The Philadelphia Gas Works Co.
Philadelphia, Pa.

The Use of Butane in Water Gas Sets for Producing High B.t.u. Gas
E. L. Fischer
United Light & Power Engineering & Construction Co.
Davenport, Iowa

Paper: REFORMED NATURAL GAS—NEW DEVELOPMENTS AND LAMP BLACK DIFFICULTIES
H. B. Young
The Chicago By-Product Coke Co.
Chicago, Ill.

2:00 P.M.

Paper: DRY BOX PURIFICATION AND CONTROL OF ALKALINITY
E. J. Murphy
The Brooklyn Union Gas Co.
Brooklyn, N. Y.

Paper: OPERATION CHARACTERISTICS OF A LIQUID PURIFICATION PLANT FOR SULPHUR REMOVAL
C. C. Furnas and R. H. Newton
Yale University School of Engineering
New Haven, Conn.

Paper: SOME DEVELOPMENTS IN GAS ANALYSIS APPARATUS
Wilbert J. Huff
Johns Hopkins University
Baltimore, Md.

Paper: ROLE OF SULPHUR IN GAS AND THE PROPERTIES OF THE PRODUCTS OF COMBUSTION OF GAS AS REGARDS CONDENSATION AND CORROSION
Louis Shnidman
Rochester Gas & Electric Corp.
Rochester, N. Y.

Wednesday

May 15—10:00 A.M.

Report: CARBONIZATION AND COKE SUBCOMMITTEE
A. B. Huyck
The Brooklyn Union Gas Co.
Brooklyn, N. Y.

Paper: COAL EXPANSION
V. J. Altieri
Massachusetts Gas Companies
Everett, Mass.

Paper: BREEZE SCREENING
M. T. Herreid
Connecticut Coke Co.
New Haven, Conn.

Paper: ACCIDENT CONTROL—COAL CARBONIZATION PLANTS
E. W. Zimmerman
Massachusetts Gas Companies
Everett, Mass.

Paper: THE EFFECT OF SMALLER FUEL SIZES ON THE OPERATION OF KOPPERS KERPELEY GAS PRODUCERS
J. G. Sweeney
The Brooklyn Union Gas Co.
Brooklyn, N. Y.

2:00 P.M.

Paper: MAINTENANCE AND OPERATION OF THOMAS RECORDING CALORIMETERS
M. F. Kleeberg
The Peoples Gas Light & Coke Co.
Chicago, Ill.

Paper: DETERMINATION OF FUSIBILITY OF COAL ASH BY THE BARRETT TYPE FURNACE
J. M. Gonder
The Koppers Coal and Transportation Co.
Pittsburgh, Pa.

OPEN FORUM

Those who attended the 1934 Production and Chemical Conference were unanimous in their praise of the outstanding presentations and discussion. The above program furnishes ample opportunity for an equally successful meeting in 1935.

Registration Fee

There will be a registration fee of $2.00 per delegate in accordance with the following resolution adopted by the Managing

Committee of the Technical Section at their December 15 meeting:

"That a registration fee be collected for the 1935 Technical Section Conferences to cover the expenses thereof, and that any surplus resulting from this registration fee be used to defray necessary research activities of the respective divisions of the Technical Section."

The Registration Bureau will be open on Monday, May 13, from 8:30 A.M. to 5:00 P.M.; on Tuesday, May 14, from 9:00 A.M. to 5:00 P.M., and on Wednesday, May 15, from 9:00 A.M. to 12:00 noon. Delegates are urged to register as early as possible on arrival so as to assure prompt attendance at all conference sessions.

Hotel reservations should be made promptly.

A. G. A. Coated Pipe Specimens To Be Removed

THE Subcommittee on Pipe Coatings and Corrosion of the A. G. A. has decided that the third of the four groups of specimens of coated pipes, which were buried in 14 places in the fall of 1929, will be removed and examined by the research associate this summer.

All gas engineers who are interested in coatings are urged by the subcommittee to visit at least one of the test sites at the time the specimens are removed. This invitation is extended to the gas industry for the following reasons:

There are 42 different kinds of coatings buried at each test site and at the time of removal they will have been exposed about 5½ years. This large group of a wide variety of coatings should be especially instructive in showing the causes of failure of coatings and the kinds of coatings that are most durable.

The subcommittee and the research associate have in the past tried to convey to the industry by means of reports a true and accurate picture of what these tests show. There are several good reasons for believing that these reports have not entirely fulfilled their purpose. Since these tests are primarily for the benefit of the gas industry, it is believed that if the gas engineers will personally examine these specimens, observe the testing methods and ask questions, they will obtain a better idea of pipe coatings than they could ever obtain from a written report.

The test sites are well distributed over the country so that almost everyone is within a few hours' drive of at least one of the sites. A list of the coatings in the test, the places of burial, and the cooperating gas companies who have contributed the labor of burying and removing the specimens is given in the *A. G. A. Proceedings*, pp. 774-804, 1931, *A. G. A. Proceedings*, 1933, A. G. A. MONTHLY, p. 267, 1930, and the *American Gas Journal*, May 1930.

Date	*Location*	*Cooperating Gas Co.*	*Gas Co. Representative*
May 20-21	Raleigh, N. C.	Raleigh Gas Co.	Mr. H. W. Gee, Mgr.
May 23-24	Atlanta, Ga.	Atlantic Gas Light Co.	Mr. E. C. Kollock, Chief Engineer
May 27-28	West Palm Beach, Fla.	Fla. Pub. Utilities Co.	Mr. C. L. C. Kah, Gen. Mgr.
May 29-30	Miami, Fla.	Fla. Power & Light Co.	Mr. R. L. Ellis, Gas Engineer

Burial of specimens in Miller clay at Shreveport, La., Dec. 4, 1929

Following is the schedule for examination of the first four test sites:

The schedule for the remaining locations will be published in the A. G. A. MONTHLY for June.

Because of weather conditions or other unavoidable circumstances it is sometimes impossible to keep on the schedule. Before starting the trip any prospective visitor to one of the test sites should get in touch with the local gas company representative to determine whether the schedule has been changed. He should then go to the gas company's office where he will be directed or taken to the test site. The first day at each site will be spent in removing the specimens and making patterns. The second day the coatings will be inspected and removed from the pipe. The specimens will be marked so that they can be easily identified and a list of the coatings in the test will be given to those who visit the test sites.

Consulting Service on Corrosion Problems

IN order that the gas industry may become more intimately acquainted with the vast amount of information pertaining to pipe coatings and methods of making soil studies which the A. G. A. research associate, Dr. Scott Ewing, has accumulated over the past seven years, the Distribution Committee announces a plan whereby Dr. Ewing's services may be obtained this summer at the very low cost of $25 per day. This plan is made possible by dovetailing side trips with his travels in connection with the removal of the third set of A. G. A. coating specimens.

This arrangement should prove exceptionally advantageous to any company desiring to consult with Dr. Ewing because he will carry with him complete equipment for testing new coatings or coatings already in service and for demonstrating the way in which to make a soil corrosion survey. One or two days spent with Dr. Ewing in a purely informal manner, either in the office or in the field, should prove very helpful to distribution and pipe line engineers.

Requests for Dr. Ewing's services should be made as soon as possible to H. W. Hartman at Headquarters and should be accompanied by the following information:

1. The number of days his services are desired and the approximate dates;
2. Whether he is to consult only or to demonstrate testing methods in the field or both;
3. The place where he is to report and the name of the party whom he is to contact;
4. Any other helpful information.

A tentative schedule has been worked out but it will be revised wherever possible to accommodate each request. C. F. Turner of The East Ohio Gas Company, Cleveland, Ohio, who is chairman of the Subcommittee on Pipe Coatings and Corrosion, will advise those who wish Dr. Ewing to visit them regarding the probable date of his visit. Dr. Ewing, himself, will send an advance notice of the exact date of his arrival.

Two Awards to E. A. Munyan

THE University of Pennsylvania, on June 19, will award the degree of bachelor of science in electrical engineering, as of the class of 1916, to Earl Addis Munyan, Cincinnati, manager of the Gas Department of the Union Gas & Electric Company.

Mr. Munyan will also receive the degree of bachelor of laws on June 7 from the Cincinnati Y.M.C.A. Law School, thereby being honored with two academic awards within 12 days.

TESTING LABORATORY

R. M. CONNER, Director Managing Committee: J. S. DeHART, Jr., Chairman N. T. SELLMAN, Secretary

Safety Pilots and Relief Valves Made Mandatory on All Approved Water Heaters

By F. R. WRIGHT
A. G. A. Testing Laboratory, Cleveland, Ohio

FOR many years various gas appliance and accessory manufacturers had been engaged in the development of various safety controls and devices to be used on domestic gas appliances. The results accomplished along this line have been most noteworthy and have added materially to the convenience, safety, and acceptability of gas service.

Among the gas appliance safety accessories developed is the automatic device to prevent the escape of unburned gas, commonly referred to as a safety pilot or thermostatic pilot. During the first few years after the Laboratory's establishment, these devices were still very much in the development stage; consequently, their use was not made mandatory on gas appliances in order for approval to be granted. As further progress was made in the perfection of such equipment, however, various appliance subcommittees included clauses in their standards recommending that the appliances under their jurisdiction be equipped with safety pilots. The more or less final perfection of these devices, and the added safety which they provided as shown by years of experience, indicated the desirability of making their use mandatory on automatic gas appliances. In the case of boilers and furnaces, such a requirement was included in the standards several years ago.

Standard Equipment

The Approval Requirements for Gas Water Heaters, effective September 1, 1931, included a recommendation that every automatic gas water heater have as standard equipment a device which would automatically shut off the main gas supply in the event that the flame keeping the valve of the device open became extinguished. In the revised edition of those standards effective July 1, 1934, this clause was changed to make it a mandatory requirement. Since the latter date, all automatic water heaters submitted to the Testing Laboratory for approval have been required to be equipped with such accessories.

For a number of years the water heater standards have included performance requirements for safety pilots, and more than 95 per cent of the water heaters which have been approved by the Testing Laboratory were equipped with such devices. Approval has been given to such water heaters, however, both with and without safety pilot equipment, permitting a manufacturer to merchandise appliances bearing the Laboratory Seal of Approval either with or without them.

Commercial Difficulties

When the requirement making safety pilots mandatory became effective on July 1, 1934, a situation arose not previously present when manufacturers were not required to merchandise their heaters equipped with a safety pilot. Manufacturers having their heaters approved since last July must sell them only with safety pilot equipment, while those manufacturers who had their heaters approved prior to that date could sell them without such accessories. This created a situation whereby one manufacturer was able to sell his appliances without safety pilots at a lower cost than a competing manufacturer who must equip his heaters with such accessories. Recognizing the commercial difficulties that would be created by the new requirement, the Gas Water Heater Institute at its meeting in Chicago in June, 1934, adopted a resolution recommending to the committees of the American Gas Association that the new requirement effective July 1, 1934, making safety pilots mandatory, be made retroactive as to all automatic gas water heaters regardless of the date of their approval. This situation was considered by the Subcommittee on Approval Requirements for Gas Water Heaters, of which E. J. Horton of the Ruud Manufacturing Company is chairman, and a ruling was adopted by that group making safety pilots mandatory on all approved automatic gas water heaters, regardless of the date when initial approval was granted, this ruling to become effective as of January 1, 1935. This ruling was later approved by the A. S. A. Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee, headed by R. B. Harper of The Peoples Gas Light & Coke Company, Chicago.

The effect of the above mentioned ruling is to withdraw approval on all automatic gas water heaters not equipped with safety pilots regardless of the date they were approved. In more than 95 per cent of the cases, however, automatic water heaters have been approved both with and without such accessories; therefore, the adoption of this ruling will not work any hardship on the great majority of the water heater manufacturers. Companies which have had their heaters approved with and without safety pilots should remove the Laboratory Seal of Approval on automatic water heaters not equipped with safety pilots and should discontinue advertising or selling them as being approved. The same heaters equipped with safety pilots, however, may continue to bear the Laboratory Approval Seal and may be merchandised as approved providing the manufacturer changes the model numbers of them to avoid confusion with the unapproved heaters of the same model.

New Tests Required

The few automatic water heaters which have been approved without safety pilot equipment cannot continue to bear the Laboratory Seal of Approval unless the heaters are re-submitted to the Laboratory equipped with safety pilots for partial performance tests. Such heaters will be tested in accordance with the American Standard Approval Requirements for Gas Water Heaters, effective July 1, 1934. It is impossible to state definitely just what tests will be required, but in most cases partial combustion tests will be necessary probably at the maximum test pressure specified and, of course, the heaters will be subjected to the tests specified under Section 10, Part II, applying to automatic devices designed to prevent the escape of unburned gas. It is urged that all manufacturers who have appliances which must be retested in accordance with this ruling, submit their heaters to the Laboratory as soon as possible in order that their approval may be continued without interruption.

A ruling similar to that referred to above, was adopted by the subcommittee and the A. G. A. Approval Requirements Committee in regard to the matter of equipping storage type water heaters with means to prevent excessive water temperatures and pressures. The Approval Requirements for Gas Water Heaters, effective July 1, 1934, did not require that heaters be equipped with means to

prevent excessive water temperatures and pressures. Committees of the American Gas Association, however, recently completed a revised edition of these requirements which becomes effective January 1, 1936. These revised requirements include a clause specifying that "Means to prevent excessive water pressures and temperatures shall be an integral part of every storage water heater." Normally this requirement would become effective January 1 of next year but because of its importance as a safety measure and the growing demand within the industry for protection of this kind, the effective date of this requirement was moved forward from January 1, 1936 to July 1, 1935. Furthermore, this requirement is to become effective in accordance with the committee's ruling on July 1, 1935 on all storage water heaters regardless of the date when they were approved.

Requirements Retroactive

The American Gas Association procedure in the past in regard to the approval of appliances and the application of requirements has been that revised requirements apply only to heaters tested under them after their effective date and are not retroactive as to appliances approved prior to that time. Renewals of approval from year to year were based on inspections to determine compliance with the requirements under which approval was originally granted. In 1934, however, the Association adopted a procedure which modified this slightly in that at the end of a five-year period after approval on an appliance had been granted, it would be necessary for the manufacturer to re-submit his appliances for approval under the latest requirements in effect at that time. In other words, the approval on an appliance originally approved by test could be renewed from year to year for a maximum of five years, such renewal being based upon compliance with the requirements under which the appliances was originally tested. At the expiration of the 5-year period, however, approval would be renewed only upon condition that the appliance complied with the latest standards. The rulings previously outlined on safety pilots and relief and automatic gas shut-off valves go one step further, making the requirements applying to such equipment on water heaters retroactive as to all such appliances regardless of when they were initially approved.

Approved storage water heaters which are not now equipped with means to prevent excessive water pressures and temperatures must be so equipped on or before July 1, under the ruling mentioned previously, in order for approval on such heaters to be continued after that date. The requirement concerning relief devices quoted above, has been so worded as to permit manufacturers a reasonable latitude in selecting devices for their appliances. It is to be observed, for example, that temperature relief means may be of the fusible plug type, automatic gas shut-off type, or any other satisfactory design, with the exception of a thermostat the use of which is not considered as meeting the requirement insofar as preventing excessive water temperatures is concerned. Separate pressure and temperature relief valves may be provided or a combination pressure and temperature relief valve should be satisfactory. Furthermore, a pressure relief valve and an automatic gas shut-off valve would meet the provision of this requirement. Hence, manufacturers who are affected by the ruling making means to prevent excessive water pressures and temperatures mandatory, may take one of several courses in securing approval on their appliances.

First, temperature, pressure and vacuum relief valves which have been tested and listed under the American Standard Listing Requirements for Relief and Automatic Gas Shut-Off Valves, may be secured from manufacturers of such equipment and applied to the storage heaters without the necessity of further Laboratory tests. In this case, it would probably only be necessary for the water heater manufacturer to advise the Laboratory as to the specific make, type, and size of the valves which he intends to use, and secure the Laboratory's approval as to the place on the heater at which they are to be installed.

Second, in case the water heater manufacturer builds his own relief valves, it would be possible for him to submit his valves to the Laboratory for testing and listing under the relief valve requirements mentioned above. Valves so listed could then be attached to his storage heaters without the necessity of submitting the complete appliances to the Laboratory for test. It would, of course, be necessary for the Laboratory to approve the location of relief and automatic gas shut-off valves on the storage vessel since such devices may be so installed as to nullify, at least in part, their value.

Third, the manufacturer may, if he desires, equip his heaters with means to prevent excessive water temperatures and pressures and submit the complete appliances to the Laboratory for test. The pressure relief valves and temperature limiting devices thus supplied on the heater would be tested under the provisions of Sections 8 and 9, Part II of the American Standard Approval Requirements for Gas Water Heaters, effective July 1, 1934.

Insulation Reduces Heating Costs in Chicago

Applying the insulating material through an opening in the roof of a two-flat building

BASED on the experience of more than 700 Chicago bungalows and two-flat buildings, The Peoples Gas Light and Coke Company recently announced the results of a survey showing that heating costs for these buildings have been reduced as much as 30 per cent through the installation of insulating materials. The company's survey shows that actual savings in heating costs have been more than enough to pay for the insulation. By arrangement with private contractors, who install the insulation, it may be paid for on monthly terms.

The insulating job is done by laying a deep layer of heat-resisting material between the joists of the attic of a house or bungalow, and between the roof joists of a two-flat building. The job can be done in a few hours without inconveniencing the home owner or tenant.

Another benefit from ceiling insulation results from blocking off the upper ends of hollow wall space, since the walls

Relaying a strip of the attic after blowing in the insulating material

otherwise act as chimneys in drawing heat out of the building.

The monthly payment for insulation is synchronized with the gas company's rental of the gas burner and controls on a monthly basis, which includes cleaning and adjusting of the heating plant.

Personnel Service

SERVICES OFFERED

Manager with long experience in handling properties having up to 3500 meters, desires change. Can furnish desired references. Now employed. Has operated natural gas property for past five years. **940.**

Utilization and **Sales Engineer;** long experience New York metropolitan area and adjacent vicinity in house heating, industrial water heating and restaurant work; also testing and installation. Well acquainted with gas companies, commercial outlets, architects and others in district mentioned. Have worked for gas companies and manufacturer of gas appliances. **941.**

Gas Engineer. College graduate, 23 years' experience both manufactured and natural gas, highest credentials, capable of taking complete charge, thoroughly proficient in installation of industrial and house heating equipment, long experience in sales, utilization and installation of domestic, industrial and commercial appliances, available on short notice, due to consolidation. **942.**

Advertising, Publicity, **Public Relations.** Practical experience in all phases of these endeavors with large western gas and electric company and two outstanding railroads, covering many years; have conducted employees' magazine. **943.**

Gas Engineer of broad experience in all branches—Supervising Engineer in Holding Company—successful in improving operating and distribution conditions—Inventories, appraisals, reports of examination, rate structures, budgets, organization, supervision. Recognized gas expert. **944.**

Sales Engineer desires employment; broad experience with Eastern Gas Utility. Friendly consumer relations of first importance. Specialized in sales, service and maintenance covering House Heating, Industrial Steam and Water Heating. Married. **945.**

Experienced office executive, **Sales Promoter,** and salesman. Associated with leading manufacturers for over fifteen years. Contact with utility companies, building, dealer and retail trades. Desirious of locating with a progressive organization. Thoroughly experienced in all phases of office routine, supervision of help, appliance construction, selling and promotional work. **946.**

Appliance Salesman. Experienced and capable salesman is considering new connection. Anything in the stove line, which includes supervision or managerial ability, or salesmanship is acceptable. **947.**

Gas Engineer and operator with fifteen years' experience including manufacture, distribution, sales promotion and especially experienced and trained in the present necessary field of **Customer Relations** and **Service** desires to associate himself with a company needing an operator, local manager, a competent department head or a customer relations supervisor. **948.**

Aggressive young man, engineering graduate, whose 10 years' **sales** and engineering experience includes house heating, winter air conditioning, and industrial gas, in manufactured and natural gas territories, wishes to make advantageous change. **949.**

Industrial Sales Engineer. Experience gained with Eastern utility. College graduate. Member ASME. Qualified make surveys, design burners, piping and auxiliaries. Familiar with all principal metallurgical operations, ceramics baking, etc. Understands space heating and air conditioning. Age, experience, ability sufficient take charge territory or department. Outstanding sales ability. **950.**

Manager—Fifteen years' practical experience in gas industry operating small properties, coal, water and butane gas. Familiar with high and low pressure and have made change over coal gas to water gas and water gas to butane. Am interested in small plants and know what it means to maintain friendly public relations. **951.**

SERVICES OFFERED

Industrial gas sales enginer (35) six years' experience large Eastern combination company. Broad experience in sales, installation and service of varied industrial appliances as: bake ovens, boilers, furnaces etc. Familiar with all competitive fuels, preparation of estimates and cost surveys, and economic rate determinations. University graduate, married. **952.**

Engineering graduate with several years' varied experience in design, manufacture, erection and operation of gas plant equipment, and in the supervision of **plant operation,** desires supervisory or technical position with company producing blue or carburetted water gas alone or in connection with coal, refinery or natural gas. Married. Location Immaterial. **953.**

A MESSAGE

Headquarters personnel service is one of those activities generally taken for granted until some pressing necessity arises. The service rendered to company and individual members is largely clearing house work, supplying a means whereby those seeking competent personnel and those desiring positions may be brought together.

Personnel Service functions at present principally through use of the confidential classification record and the keyed advertisement. The former, properly filled in and appropriately classified is singularly complete. It is concise, easily read and furnishes a clear picture of the personal, educational and professional qualifications of the individual it describes, together with a chronological arrangement of his actual experience.

The advertising feature of the service—for which there is no charge—appears as the entire last page of each issue of the A. G. A. Monthly. Individuals seeking new connections may present, in the "Services Offered" columns, an anonymous advertisement of fifty words; the gas company, manufacturer, dealer, etc. uses the "Positions Open" column. With respect to the former, and for members, insertion for three consecutive issues is offered; for non-members, in deserving cases, at least one advertisement is customary.

All correspondence relating to the personnel page and other inquiries of similar nature is handled in confidence and with discretion; under no circumstances is the name of a "Positions Open" advertiser ever revealed without his permission. Sometimes Personnel Service is authorized to prepare from its records "short lists" of likely personnel; on occasion instructions may be given to forward only those answers to advertisements which appear to describe individuals of the required qualifications.

The Association may also be requested by gas companies, municipal officers, public service commissions, financial houses and others, to furnish the names of consultants competent to advise and assist in public service matters. The Association does not recommend any individual, believing the needs of each situation can best be met by furnishing a list of names, addresses, and brief synopses of the qualifications of available consultants.

The first recorded vacancy appeared under Key No. 1 in the 1913 N. C. G. A. Bulletin, and in the A. G. A. Monthly of 1919, so that for many years this activity has regularly served the interests of both employer and employee.

The attention of employers is invited not only to the manifest advantages of using this service more, but also to the splendid effect an advertised vacancy has upon the morale of men out of work, generally through no fault of their own.

From American Gas Association Information Service No. 112 December 4, 1933

SERVICES OFFERED

Salesman—with access to gas company officials and plumbing and mill and mine jobbers on Atlantic Seaboard and West to Pittsburgh, Columbus and Cleveland. Wants engineering, mechanical or appliance line. 12 years' experience in this territory as salesman, sales promotion man and sales manager with two prominent manufacturers. **954.**

Working Foreman, for water gas plant, send-out about 100,000. 13 years' experience making gas, able to make general repairs and welding; familiar with high and low-pressure. Was foreman of plant 5 years with 150,000 send-out. Southern territory preferred. **955.**

Sales Engineer with established contacts and a New England office seeks exclusive representation with some manufacturer of financial standing who wishes to establish his line in the East. Background includes both gas and electric utility sales as well as managerial experience plus an excellent record with manufacturers. **956.**

Would like to hear from a company that is seeking a man of experience and personality to develop **house heating** industrial and commercial sales. If you have a virgin territory, one that requires personal contact to build good will and increase sales it would pay to communicate for further particulars. **957.**

POSITIONS OPEN

Manufacturer of combination new radiant type broiler, griddle and toaster, launching national sales program, desires **state representative** with distributor dealer franchise ability. Prefer those who are now representing other similar lines, or with past successful sales experience. Here is a real item at a real price with a liberal sales commission Please give complete information in your application. **0284.**

An old, established concern having a complete line of gas fired boilers and furnaces desires high class **representation** in eastern, southern, and central territory. Will be interested if your lines are non-competitive. **0286.**

Sales Representative or **Distributor.** A large middle west manufacturer of a complete line of gas-fired automatic water heaters desires representation in the Los Angeles and Southern California territory. Prefer those who are now representing other lines of gas appliances, also those who can properly service 4,000 units now in that territory. **0287.**

Working Foreman for gas plant, send out about 100,000 per day. Must be able to make gas part of time and make own repairs. State salary expected and give references. Location, South Carolina. **0288.**

Wanted—a man who is familiar with **making water gas** and can make the necessary repairs around a gas plant. Married man preferred, state wages expected and experience. **0289.**

Research and Planning Assistant. Successful applicant must be able to (1) accumulate, study, correlate and evaluate statistical data; (2) initiate, think through and develop new ideas on sales administration and methods; (3) successfully transfer ideas and facts to sales supervisors. Position calls for research in retail trade, payroll statistics, income levels, home owners, comparable markets, sources of business, cancellations, returned merchandise, etc., and planning budget control, compensation, sales contests, quotas, etc. Incumbent will be expected to interpret results and be alert to necessary changes in sales program. Executive type needed with salary commensurate. **0290.**

Salesman wanted; consumer salesman for Maine city; must be thoroughly experienced in house-to-house selling of appliances—refrigerator training highly desirable. Drawing account against commission; see that your letter gives full details of education, experience and remuneration required. **0291.**

Sales representatives in a great number of the states; the merchandise which we manufacture includes conversion type burners for natural, manufactured and mixed gas, safety pilots, electric and manual controls and miscellaneous accessories. **0292.**

Advisory Council

E. R. ACKER.....Poughkeepsie, N. Y.
JAY BARNES.....New Orleans, La.
J. I. BLANCHFIELD.....Brooklyn, N. Y.
D. W. CHAPMAN.....Chicago, Ill.
FRANK L. CHASE.....Dallas, Texas
H. C. COOPER.....Pittsburgh, Pa.
J. D. CREVELING.....New York, N. Y.
E. S. DICKEY.....Baltimore, Md.
R. G. GRISWOLD.....New York, N. Y.
O. S. HAGERMAN.....Chicago, Ill.
W. H. HODGE.....Chicago, Ill.
SAMUEL INSULL, JR.....Chicago, Ill.
F. B. JONES.....Pittsburgh, Pa.
D. F. KAHN.....Hamilton, Ohio
C. C. KRAUSSE.....Baltimore, Md.
F. A. LEMKE.....Kalamazoo, Mich.
A. B. MACBETH.....Los Angeles, Calif.
D. M. MACKIE.....Jackson, Mich.
F. A. MILLER.....Bradford, Pa.
W. F. MILLER.....Chicago, Ill.
E. B. NUTT.....Pittsburgh, Pa.
CLIFFORD E. PAIGE.....Brooklyn, N. Y.
I. K. PECK.....Boston, Mass.
A. E. PEIRCE.....Warrenton, Va.
J. A. PERRY.....Philadelphia, Pa.
GEO. W. RATCLIFFE.....Pittsburgh, Pa.
J. M. ROBERTS.....Chicago, Ill.
N. T. SELLMAN.....New York, N. Y.
ARTHUR STOCKSTROM.....St. Louis, Mo.
D. B. STOKES.....Burlington, N. J.
T. J. STRICKLER.....Kansas City, Mo.
F. S. WADE.....Los Angeles, Calif.
T. R. WEYMOUTH.....Pittsburgh, Pa.
E. L. WILDER.....New York, N. Y.

AFFILIATED ASSOCIATIONS

Canadian Gas Association
Pres.—J. Chesley Dawson, Quebec Power Co., Quebec, Canada.
Sec.-Tr.—G. W. Allen, 21 Astley Avenue, Toronto.

Empire State Gas and Electric Association
Pres.—C. E. Paige, The Brooklyn Union Gas Co., Brooklyn, N. Y.
Chairman, Gas Section—A. M. Beebee, Rochester Gas & Electric Corp., Rochester, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.

Illinois Public Utilities Association
Pres.—Bernard J. Mullaney, The Peoples Gas Light & Coke Company, Chicago, Ill.
Sec.—J. R. Blackhall, Suite 1213, 79 West Monroe St., Chicago, Ill.

Indiana Gas Association
Pres.—R. N. Zeek, Northern Indiana Public Service Co., Michigan City, Ind.
Sec.-Tr.—P. A. McLeod, New Castle, Ind.

Michigan Gas Association
Pres.—D. W. Hayes, The Detroit Edison Co., Port Huron, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.

Maryland Utilities Association
Pres.—W. A. Tobias, Hagerstown Light & Heat Co., Hagerstown, Md.
Sec.—C. R. Burger, 26 South Jonathan St., Hagerstown, Md.

Mid-West Gas Association
Pres.—Frank H. Brooks, Northern Natural Gas Co., Omaha, Neb.
Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.

Missouri Association of Public Utilities
Pres.—Fred Karr, St. Joseph Gas Co., St. Joseph, Mo.
Sec.-Tr.—N. R. Beagle, Missouri Power & Light Co., Jefferson City, Mo.
Asst. Sec.—Jesse Blythe, 103 West High St., Jefferson City, Mo.

New England Gas Association
Pres.—R. H. Knowlton, The Connecticut Light & Power Co., Hartford, Conn.
Exec. Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.

New Jersey Gas Association
Pres.—Herbert E. Cliff, Public Service Electric & Gas Co., Newark, N. J.
Sec.-Tr.—G. B. Webber, Public Service Electric and Gas Co., Newark, N. J.

Ohio Gas and Oil Men's Association
Pres.—L. K. Langdon,* Union Gas & Electric Co., Cincinnati, Ohio.
Sec.-Tr.—Frank B. Maullar, 811 First National Bank Bldg., Columbus, Ohio.

Oklahoma Utilities Association
Pres.—W. B. Head, Jr., Oklahoma Power and Water Co., Sands Springs, Okla.
Mgr.—E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—William Moeller, Jr., Southern California Gas Co., Los Angeles, Calif.
Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—T. W. McDonald, Pennsylvania Gas & Electric Co., York, Pa.
Sec.—Frank W. Lesley, Pennsylvania Gas & Electric Co., York, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—G. W. Harr, Monongahela-West Penn Public Service Co., Fairmont, W. Va.
Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.

Southern Gas Association
Pres.—C. B. Gamble, Birmingham Gas Co., Birmingham, Ala.
Sec.-Tr.—S. L. Drumm, New Orleans Public Service Inc., New Orleans, La.

The Public Utilities Association of Virginia
Pres.—T. Justin Moore, Va. Elec. & Power Co., Richmond, Va.

Wisconsin Utilities Association
Pres.—G. V. Rork, Northern States Power Co., Eau Claire, Wis.
Exec. Sec.—A. F. Herwig, 135 West Wells St., Milwaukee, Wis.

* Died February 27.

AMERICAN GAS ASSOCIATION, Inc.

HEADQUARTERS, 420 LEXINGTON AVENUE, NEW YORK, N. Y.

OFFICERS AND DIRECTORS

President	P. S. YOUNG	Newark, N. J.
Vice-President	L. B. DENNING	Dallas, Texas
Treasurer	J. F. ROONEY	New York, N. Y.
Managing Director	ALEXANDER FORWARD	New York, N. Y.
Assistant Manager	H. W. HARTMAN	New York, N. Y.
Secretary	KURWIN R. BOYES	New York, N. Y.
Director, Publicity-Advg.	C. W. PERSON	New York, N. Y.
Departmental Vice-Pres.	J. B. TONKIN	Pittsburgh, Pa.
Sectional Vice-Pres.	A. S. CORSON	Philadelphia, Pa.
Sectional Vice-Pres.	F. M. ROSENKRANS	Kansas City, Mo.
Sectional Vice-Pres.	J. F. QUINN	Brooklyn, N. Y.
Sectional Vice-Pres.	JOHN A. FRY	Detroit, Mich.
Sectional Vice-Pres.	C. A. HARRISON	New York, N. Y.
Chairman, Pub. & Advg. Com.	HENRY OBERMEYER	New York, N. Y.

H. C. ABELL	New Orleans, La.	F. C. FREEMAN	Providence, R. I.
WALTER C. BECKJORD	Pittsburgh, Pa.	R. W. GALLAGHER	New York, N. Y.
HOWARD BRUCE	Baltimore, Md.	ARTHUR HEWITT	Toronto, Ontario
H. O. CASTER	New York, N. Y.	CONRAD N. LAUER	Philadelphia, Pa.
ADDISON B. DAY	Los Angeles, Calif.	N. C. McGOWEN	Houston, Texas
J. S. DeHART, Jr.	Newark, N. J.	B. J. MULLANEY	Chicago, Ill.
B. J. DENMAN	Chicago, Ill.	WM. T. RASCH	New York, N. Y.
HENRY L. DOHERTY	New York, N. Y.	THOS. E. ROACH	Tacoma, Wash.
O. H. FOGG	New York, N. Y.	W. FRANK ROBERTS	Baltimore, Md.
		HERMAN RUSSELL	Rochester, N. Y.

SECTION AND DEPARTMENT OFFICERS

NATURAL GAS—Chairman	J. B. TONKIN	Pittsburgh, Pa.
Vice-Chairman	WILLIAM MOELLER, Jr.	Los Angeles, Calif.
Secretary	A. E. HIGGINS	Dallas, Texas
ACCOUNTING—Chairman	A. S. CORSON	Philadelphia, Pa.
Vice-Chairman	F. L. GRIFFITH	Chicago, Ill.
Secretary	H. W. HARTMAN	New York, N. Y.
COMMERCIAL—Chairman	F. M. ROSENKRANS	Kansas City, Mo.
Vice-Chairman	C. E. BENNETT	Binghamton, N. Y.
Secretary	J. W. WEST, Jr.	New York, N. Y.
INDUSTRIAL GAS—Chairman	J. F. QUINN	Brooklyn, N. Y.
Vice-Chairman	C. W. GALE	Denver, Colo.
Secretary	C. W. BERGHORN	New York, N. Y.
MANUFACTURERS—Chairman	JOHN A. FRY	Detroit, Mich.
Vice-Chairman	MERRILL N. DAVIS	Bradford, Pa.
Vice-Chairman	J. SCOTT FOWLER	Philadelphia, Pa.
Secretary	C. W. BERGHORN	New York, N. Y.
TECHNICAL—Chairman	C. A. HARRISON	New York, N. Y.
Vice-Chairman	F. A. LYDECKER	Newark, N. J.
Secretary	H. W. HARTMAN	New York, N. Y.
PUBLICITY & ADVERTISING COMMITTEE—Chairman	HENRY OBERMEYER	New York, N. Y.

PRINTED IN THE U. S. A.